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VOLUME XII

NUMBER 4



SAN FRANCISCO

1927

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WILLIAM E. COLBY
Secretary of the Sierra Club and Leader of its Twenty-five Annual Outings

SIERRA CLUB BULLETIN

VOLUME XII

NUMBER 4



SAN FRANCISCO

1927



ANIMAL LIFE OF YELLOWSTONE PARK

BY VERNON BAILEY, BIOLOGIST, UNITED STATES BIOLOGICAL SURVEY



AVOIDING the beaten tracks and dusty trails of the well-known ways, the Sierra Club members, on their outing in Yellowstone National Park in July, 1926, as usual sought out the little-frequented backways and high grounds of the region where animal life was rarely disturbed and the interests were along the lines of exploration and discovery. From Nez Percé Creek to Old Faithful, Shoshone Lake, Lewis Lake, Heart Lake, Snake River, over Big Game Ridge and Two Ocean Plateau, down to Bridger Lake and the Upper Yellowstone River, down the river and along the east side of Yellowstone Lake to the north end, the trip was all on foot and by trail. Even farther, for about half of the party kept to the trail from Yellowstone Lake to the Canyon along the east side of the river instead of riding in the big busses along the comfortable roads on the west side. The ordinary ease and comfort of tourist travel were scorned for the greater reward of close contact with the wild life of the park and the joy of living on intimate terms with our fellow creatures of forest and peak and plain and marsh and stream.

With over two hundred people strung out along the trails, followed later by half as many pack- and saddle-horses, it was not possible for each person to see all of even the large game animals that might have been seen by one alone or by a few together; but on the whole trip most of the game animals and many others were seen, and the

more fortunate members of the party shared their thrills with the rest along the trails or when gathered around the evening camp-fires. Many of the smaller mammals and birds were common along the way and around our camps, and even the obscure nocturnal mice and shrews were frequently captured for study or close acquaintance.

Of the big game animals the buffalo were about the least in evidence, the small show herd in the pasture near Mammoth Hot Springs being all that were seen by our party, because our trails did not take in the summer range of either of the main herds. At our camp on the northern end of Yellowstone Lake we were within fifteen or twenty miles of the wild herd, estimated last year at 125 animals, but the rangers said it might take several days of hard riding to locate any of them. They are really wild, and are rarely seen in summer as they wander through the open valleys and timber on the headwaters of Pelican and Raven creeks, or in winter as they dig in the snow for grass in the Pelican Creek Valley.

The tame herd, so called because the animals are kept in a large pasture and fed hay during the winter, were off on their summer outing in the mountains; but with the first snows they are rounded up and brought down to the buffalo ranch on Lamar River for the winter. Last year there were about seven hundred in this herd, and each year adds a new crop of calves to more than balance the few losses. In fact, the herd is now so large and requires so much hay for winter-feeding that its further increase, especially of the bulls, offers a serious problem for Superintendent Albright to handle. At his first enthusiastic greeting of the Sierra Club he offered to give each member of the party a buffalo bull to take home. The one condition of the gifts, however, was that we come and get them, and it seems doubtful if this offer greatly reduces the herd.

Mountain-sheep were seen by a few members of the party on the Trident Plateau, and a herd of nineteen ewes and lambs was seen and photographed on Mount Washburn by Dr. Cleary; but the best sheep country of the park, in the northeastern corner, was not covered, and we did not climb to their crags even where we came nearest to them on Specimen Ridge or on Mount Everts. The 1925 official estimate of six hundred of these noble animals in the park indicates a gratifying increase in their numbers.

Antelope were not found along our trails, and none was seen by the members of our party. At this season they are mostly in the

Lamar River Valley, but later they will come down to the lower and warmer Gardiner Valley to spend the winter. The April count for 1925 gave 417 in the park herd.

Moose were not only the largest but most thrilling of the game animals seen in the park, and practically all of the party saw at least one or a few, while many saw a dozen or more and some at close quarters. They were mostly found in the Bridger Lake and Upper Yellowstone country, either in the deep shade of the spruce forest in the daytime or out feeding in the meadows or lakes in the evening. In recent years they have become more generally scattered over the entire park, and their number in 1923 was estimated at 525. The horns of the old bulls were nearly full-grown, but still in the velvet, and while most of the animals seen were not very shy, none showed signs of aggressiveness. Huge, ungainly, but powerful, swift in flight and efficient in their adaptation to deep snows and food conditions that would be impossible to other animals, they hold a field of their own in the animal economy of the park. Too large and powerful to fear any natural enemies, they have acquired none of the usual protective coloration of most game animals, and, like the bears, keep their dark coats the year around. In winter they wade through the deep snows or trample trails and yards in favorite feeding-grounds, which in summer are recognized by the stumps of eaten willow bushes, the large oval pellets of the winter season, and the well-trampled ground characteristic of the "moose yards."

More elk were seen than any other game animals, and every member of the party saw them, although some of those in the rear of the party complained that they were always too far away. In most cases the herds were somewhat wild and soon moved off as we approached. Many were seen on Big Game Ridge and Two Ocean Plateau. Small herds and scattered individuals were frequently seen, and many of the old bulls had fine sets of full-grown antlers, still in the velvet. The larger herds of elk were mainly near or above timber-line, where the cool winds swept away the flies and where the tender grasses, clovers, and a carpet of flowering plants afford the luxuriant pasture of rich food necessary to the rapid growing and fattening process of the herds with long hard winters ahead. It was gratifying to note the abundance of summer range with seed-laden grasses, capable of supporting a still greater number of game animals if the winter ranges in the valleys were equally well sup-

plied with forage. Most of the elk seen belong to the southern herd, estimated last year at 19,000 animals, which winters mainly in the Jackson Hole region south of the park. The northern herd, of about the same size, remains in the northern edge of the park in winter or moves down into Montana if the snow is deep.

Rocky Mountain mule deer were seen here and there all along the way, being uniformly scattered over the park in considerable numbers, officially estimated in 1925 at 1800 individuals. Some fine sets of full-grown antlers were seen, still in the velvet, and a few spotted fawns were reported by fortunate members of the party. The bright reddish-brown coats of the summer, the huge ears, and the little white, black-tipped tail in the middle of the large white rump patch are striking characteristics.

No white-tail deer were reported, and the rangers seem to doubt if there are now any in the park. A few years ago there were always a few to be seen in the lowest corners of the park, but even there they seem to have disappeared.

Of all the game animals of the Yellowstone Park, however, the bears afford the greatest interest to the greatest number of visitors, and some real wild bears were seen by our party as well as those seen at the hotels. At Old Faithful only the blacks and browns were seen at the feeding-places the two evenings we were there, but an occasional grizzly is said to come late in the evening. Near Nez Percé Creek we saw a large track with claw-marks three inches ahead of the toes, but saw no more signs of grizzlies until in the Snake River and Upper Yellowstone country, where several bears were seen along the trail by different members of the party and a few large tracks were found along the shores of the river and lake. Our feast of bears, however, was at the Canyon, where considerable numbers of silver-tips as well as the black and brown came to the feeding-places every evening. At the Canyon Hotel bear-feeding grounds we saw six grizzlies one evening, and the next evening at Canyon Camp, on the east side of the Canyon, we saw nine at one time, all feeding quietly—five yearlings in beautiful silvery coats, one cub, showing a trace of silver, with its dark short-haired mother, and two large old bears, probably males, in the short almost black summer coats. The thin summer coats really show off the rangy form, high shoulder hump, long legs, and powerful muscular bodies to better advantage than does the long glistening winter fur. These



CANYON OF THE YELLOWSTONE RIVER

Yellowstone National Park

Photograph by Walter L. Huber



PORCUPINE
Yellowstone National Park
Photograph by Elsie M. Zeile

dignified lordly brutes feeding quickly and quietly on table scraps, scorning to notice the several hundred hushed and thrilled spectators back of the line, were a spectacle of a lifetime, not to be seen anywhere else in the world and well worth all the effort of the trip. This, too, was but an average evening; as many as twenty-four were seen together at one time before we were there. The last official estimate places the number of grizzlies in the park at seventy-five.

Away from the hotel feeding-places grizzlies get their normal food, consisting of thistles, cow-parsnips and many other green plants and roots, some berries, the inner bark of spruce and pine trees, mice, ground-squirrels and such small game, besides a great variety of insects and insect larvae. The insect food is mostly obtained from rotten wood and from under stones. The great abundance of meadow-mice in the open grassy places in the park this year has provided a feast for the bears; especially in the Canyon country. The grassy slopes were pitted with hundreds of holes, where the bears, with a single stroke of the claws, had scooped out mice or mouse-nests. In spring the thawed-out carcasses of the large game animals that have died during the winter afford a substantial food supply, but through the winter the bears economize by a six-month sleep.

The black and brown bears are more numerous than the grizzlies, being officially estimated at about two hundred in the park, and they are also more generally distributed. A few were seen at most of the regular camping-places, and tracks were found along all the trails and frequently in the woods or meadows. At the hotel bear-feeding-places they generally outnumber the grizzlies, but are very deferential, coming early and promptly leaving when the grizzlies appear on the scene. The many individuals that have become tame around the hotels will take food from the hands of those accustomed to feeding them, but are dangerous when others try to feed them or fool with them and excite their anger or resentment. If properly understood, and close contact is avoided, they are in noways dangerous. On several occasions one came into our camp and quietly smelled around to see if any choice bits of food had been left for it. Several lunches were thus misappropriated by one at our Lewis Lake camp, to the great amusement of those watching, and thereafter it was found advisable to suspend lunch-bags from the tips of pine branches above the reach of a tall bear. At our Canyon camp several bears walked into camp, but were so quiet and well-behaved

that no one objected. One of the young ladies was somewhat startled on awaking one morning to find a large black bear standing with his front feet on the bottom of her sleeping-bag, but when she told him to "shoo" he promptly "shooed," and she enjoyed the thrill of an almost-adventure.

The "hold-up" black and brown bears along the stage roads are a recent development, and are now met with in many places along the main stage roads. Even the big busses generally stop for a minute to let the tourists throw crackers, peanuts, raisins, or any left-over lunch material, to the bears, and the thousands of passers-by each day keep them well supplied with food. With private automobiles there are often longer visits and more substantial contributions of good things from the car-windows, and the great surprise to all is the gentle, dignified, and well-bred behavior of the bears as they sit by the side of the road and wait until invited to come to lunch.

Away from the roads and hotels black bears find plenty of food, green plants and roots and bark, some berries, mice and small game, nuts and numerous insects. A few peeled trees along the trails showed where some hungry bears had made good square meals on the sweet juicy cambium layer of the year's growth under the bark of a pine or spruce tree. One such tree found by the Fawn Creek trail, freshly peeled and scraped, was carefully photographed. The bark had been bitten out at the ground and strips peeled off to a height of five or six feet clear around the tree, then the fresh gelatinous surface of the naked trunk had been scraped upward with the lower incisors, scooping at each scrape a good mouthful of the sweet rich tree food into the bear's mouth. The Indians do the same thing when hard pressed for food, but neither bears nor Indians do it often enough to kill any great number of trees. It is apparently an emergency ration.

The predatory animals of the park were little in evidence. Not a track nor a sign of mountain-lion was found by any of our party, and the rangers say that these big cats are very scarce, even in the Upper Yellowstone country, where cliffs and caves and abundance of big game once afforded a paradise for them. One was seen during the summer near Tower Falls, but evidently there are no longer enough to make any serious inroads on the elk and deer, which are their especial prey.

Of the other large cats in the park there are said to be a very few

Canada lynxes, but we saw no tracks or signs of them; of the large Rocky Mountain bobcat only a few tracks were seen in the valley below Mammoth Hot Springs.

Wolves are said to be very scarce now, although they are not entirely gone. A few tracks and signs were seen in the Two Ocean Plateau country, and one wolf was seen by a member of our party on the side of the Trident Plateau. The few that remain are not a great menace to game; but their numbers must be kept down to a very low ebb or great havoc will be caused, as in the former days of the park.

Coyotes are fairly common still in the park. A few were seen by various members of the party, and tracks and traces were seen along every trail. Their strident voices often serenaded our evening or morning slumbers and afforded real thrills of wild nature to which we have not all outgrown our kinship. To most of us they are just one more welcome form of wild life; but reading more carefully the signs along the trails, we could usually detect deer, sheep, or antelope hair in the coyote droppings, and, while at this season mixed with mouse and rabbit fur, grasshoppers and berries, there is evidence of the loss of many, young and old, of our choicest and gentlest game animals through these crafty prowlers. But for the vigilant work of the rangers the coyotes would soon increase into a serious menace in the park and the much-vaunted *balance of nature* would swing back to mostly coyotes. A large number of coyote-skins are officially taken in the park each winter, but certainly not too large a number for the good of the game.

Red or cross foxes were seen near Heart Lake, and their pungent odor was often noticed along the trails. The abundant mice provide them a perennial feast, and the fox sign seen along the trails was made up mainly of mouse fur and bones.

Of the fur-bearing animals glimpses of shy marten and mink were had by the very fortunate few of the Sierra Club, both species being fairly common in the park.

A few weasels were seen along the way, and our first day's camp at Nez Percé Creek was enlivened by the capture and photographing of a fine large male Arizona weasel. He was frightened up a lodgepole pine, snared in the topmost branches, and brought down for all to examine, then carried along for a couple of days in a tin can and fed on meadow mice until he made his escape.

None of the tiny least weasels was seen.

No otter were seen, but in several places in the park they are said to be fairly common.

Wolverines and fishers were not seen or expected, although old records give both for the park. One real live skunk came into one of the tents in the women's quarters at the north end of Yellowstone Lake, but fortunately did no damage.

A live badger was seen in the zoo at Mammoth Hot Springs, and old burrows were occasionally seen over the park. A skull and skeleton of an old badger was found at timber-line on top of Big Game Ridge, for there seems to be no zone limit to the range of these hardy wanderers.

Beavers are found in many places in the park, but nowhere in very considerable numbers, nor is there suitable food for large colonies. Aspens, their favorite food, are scarce over most of the park, as they are apt to be in an elk country, and the beavers found were living mainly on willows, small shrubs, and green vegetation. In several places on Shoshone, Lewis, and Heart lakes, and on Snake River and the Upper Yellowstone, they had cut or barked considerable numbers of lodgepole pines, simply because there were no other trees within their reach. Some of the trees had been cut and used merely for building materials for houses and dams, but from others large patches of bark had been eaten near the base. On Lava, Black-tail, Elk, Lost, and Tower creeks they still get some aspen. A few beavers were seen by various members of the party in Lewis and Heart lakes and along the Upper Yellowstone. The heavy trap for catching them alive, on which we counted for bringing a beaver into camp for all to get acquainted with, was left at Mammoth, and on our one night there it failed to catch the beaver and we were miserably disappointed. Our closest contact with a beaver was on the shore of Heart Lake one evening around the big camp-fire. While we were singing and talking someone said "What is that in the water?"—and there, only fifty feet from us, a large beaver swam slowly past the camp-fire, then turned and came back past us, evidently as much interested in the strange gathering of people, the unusual sounds, and bright light on his lake shore as we were in him.

Muskrats were found in most of the streams and lakes visited in the park, and their houses were seen in the marsh at the west end of Shoshone Lake and in the marsh of Swan Lake Valley. At Heart



MOTHER MOOSE AND CALVES



BULL AND COW MOOSE

MOOSE IN THE UPPER YELLOWSTONE VALLEY

Yellowstone National Park

Photographs by George Shiras, 3d



THE TURRET FROM MOUNTAIN CREEK
Yellowstone National Park

Lake a family of half-grown young lived in bank burrows of a warm spring close to our kitchen camp, and were frequently seen swimming in the spring and along the lake shore mornings and evenings.

The beaver and muskrat carry the fur-bearing animals into the great group of rodents, or gnawing animals, all more or less well furred but mostly too small to be of commercial value. In other countries squirrels yield valuable fur, but fortunately our little red squirrel or pine squirrel has no price on his coat and can sing and play and feast on delicious pine seeds to his heart's content. The martens and weasels will not let the squirrels become too numerous, but in every woods and at every camp we found their bright chatter and petulant scoldings, their saucy inquisitive inspection of us and our suspicious equipment, one of the joys of the woods. Their big heaps of refuse, cone scales and cores, often in piles of ten or twenty, or perhaps even forty, bushels, that had accumulated for long years under favorite feeding-trees, were an endless source of surprise and interest along the way. "Squirrel kitchens," or "kitchen-middens," they have been called, and they are more than refuse heaps; they are favorite storehouses for the winter's food, where the seed-laden cones are buried by hundreds and by bushels in cavities easily scooped out. On July 28th we found the first green pine cones being stored in one of these heaps not far from Mountain Creek. Clean grass nests were being built among the stores, nests that would be used in winter when all was buried deep under the snow and better protected from the cold blasts than the grass-ball nests among the pine branches overhead. In summer the squirrels live in the tree nests; but when the bears have gone to sleep there must be a choice between danger from martens in the tree nests and danger from weasels in burrows leading to the ground nests. Whichever enemy appears, the squirrels must have a chance for escape, or none would remain to tell the tale in spring or to rear their baby squirrels in the soft grass nests of the treetops.

The squirrel family is large, and includes the little yellow-bellied and sagebrush chipmunks along the way, the brown-mantled ground-squirrel, the fat little gray picket-pin of the open parks and grassy plains, and the big fat brown woodchucks of the rocky slopes. The woodchucks live among the rocks because the bears would eat them up if they ever got out of reach of rocky cover, but they have learned

to be cautious and vigilant, and are abundant even close to where the bears are most in evidence. At Old Faithful Camp they live under the hot-spring ledges, or under the cabins, and will come and sit on your cabin doorstep, waiting for a cracker or some rolled oats. If you open the door and talk reassuringly to them they will come in and take crackers from your hand, sit up and eat them, and then look wistfully at you for more. Naturally among the most timid of animals, they have learned to trust man and turn to him for food and protection. At Canyon Camp they are still more abundant because there are always at hand rocky cliffs and ledges where they can live in perfect safety and from which they come out along the roads and trails to make friends with passing visitors. Some are shy, but others will come boldly up to anyone who offers tempting food and are a source of great delight to thousands of visitors to the park. The food received in this way is merely a delicacy to them, for after eating crackers, popcorn, peanuts, and such light fare, they waddle off to the meadows where they stuff their large stomachs with clover, grass, green plants, and flowers and seeds of many kinds, and then sleep until time for the next square meal. By August 1st they were already getting fat, and with the first cold weather they would go down into warm grassy nests among the rocks and go to sleep for the winter. They sleep longer than do the bears, but not so long as the fat little picket-pins, who were all gone below the surface of the ground when we came back into their country on the third of August.

No flying-squirrels were seen on our trip, simply because they are so strictly nocturnal as to be rarely seen, even where common. The many deep woods suggested good places for them, and they are undoubtedly present in much of the park, as they are in the surrounding country. In the July number of *Nature Notes*, Park Naturalist Sawyer records two flying-squirrels found in a hollow telegraph-pole in Elk Park, near Norris Geyser Basin. Raised by hand they make delightful pets, but, like all flying-squirrels, are sleepy in the daytime.

Wood-rats were not actually seen by any of the party, although every cliff and rock-pile and talus-slope is the home of the big gray bushy-tailed animals, too beautiful and bright and interesting to bear the odious misnomer of *rat*. Their stick nests, or houses, were occasionally seen piled in between the rocks, and white streaks mark most of the cliffs where they live. They could also be recognized by

a strong pungent odor, peculiar to the group, as we walked over the rocky talus or along the base of a cliff. Still they are rarely seen except as collected for specimens, for they are strictly nocturnal in habits and rather shy and timid animals, although in some old cabin at night one will make more noise than a grizzly bear. They are the *pack-rats*, or *trade-rats*, of endless stories and yarns, most of which have some grains of truth mixed in at random.

Porcupines are scattered all over the park, and many peeled pine trees were seen along the trails where they had feasted on large slices of inner bark during the winter when the snow was deep. Sometimes a patch of bark as large as your hand or your hat had been eaten, and again a wide strip had been taken clear around a tree. A few trees were actually girdled and killed and many more injured; but there are always plenty left, and these porcupine blazes and an occasional porcupine along the way help to make the forest interesting. At our Canyon camp a large porcupine was discovered in the top of a lodgepole pine and brought into camp, where he was examined by all, weighed, and kept in a box over night so as to be photographed in the morning. He seemed large, but actually weighed only $33\frac{1}{2}$ pounds. He was not accustomed to so many people at one time, however, and showed a great desire to go back to his rock den on the hilltop. After some good pictures had been secured, he was allowed to go up a pine tree, where he sat all day on a branch.

Snowshoe rabbits, in sooty summer coats and with big white feet, were occasionally seen in the shadowy woods, sometimes scampering away from the trail and again sitting unafraid watching us go by at close quarters. At Old Faithful several lived under the cabins and came out in the late afternoon to nibble grass-tops and clover around the dooryards without any fear of the people, who watched them with interest. The absence of dogs, cats, and guns in the park has made a striking change in the habits and dispositions of many of the smaller animals and has given them new faith in man.

At Mammoth Hot Springs the big prairie jack-rabbits, in light gray summer jackets and big puffy white tails, sit on the best-kept lawns, where the closely mown white clover affords a choice food. They pay little attention to passers-by and were easily photographed at six feet from the camera.

The little coneys were seen and heard at several places among the rocks; the first in the broken talus along the cliff west of Emerald

Pool, others near timber-line on the east slope of Mount Sheridan, and again on the head of Lynx Creek on Two Ocean Pass. Their little nasal bleat, or *e a m p*, repeated at irregular intervals from among the broken rocks where they live, was the only clew to their presence until the eye could catch some slight motion or pick out one sitting still on top of a rock close to a hole where in a twinkling he could dive out of sight. They are gentle little rabbit-like animals, the size of your fist, with soft fluffy fur, short round ears, woolly-soled feet, and no tails at all. Wherever they occur they seem to be always the same color as the rocks under which they live, and, being a "feeble folk," they depend entirely on the rocks for protection. Their hay-gathering season had not arrived when we were among them and they were not very active, but remains of old stacks of last winter's hay were found under big boulders, all eaten during the winter except the sticks and stems and hard parts.

Mice of many kinds were found along the way, the long-tailed jumping-mice in grassy places, the big-eared deer-mice in old cabins among the rocks and logs, the bright little red-backed mice in the woods, and four species of meadow-mice in the meadows and grassy parks. Specimens of all were collected for the park museum, and many were caught alive in tin cans and bottle-traps for the children of the party to play with along the way. The excitement of going to the mouse-traps in the morning was quite an event in the lives of the young people of the party.

Smaller still than the mice were the little long-nosed shrews, often found in the traps, two species very similar in appearance, but easily distinguished by their skulls and teeth. The larger water-shrew, also, was found swimming about in an old tank near the Mammoth Hot Springs; the first actually recorded for the park, but it was not collected, as it was having such a good time feasting on water-insects and a dead meadow-mouse that had fallen into the water and drowned or been killed by the shrew for food.

Bats were rarely seen on the trip, although one would occasionally flit around our camp-fire in the evening, and a few of the long-eared bats were found in the Devils Kitchen at Mammoth Hot Springs. The bats of the surrounding country are fairly well known, and it seemed unnecessary to disturb them in the park, although it is desirable that we should know what species occur and learn more about these very useful insect destroyers.





BEAVER DAM NEAR SOUTH BOUNDARY
Yellowstone National Park

As the animal life becomes less abundant in our settled sections of the country, and the remnants of vanishing species more wary and difficult of study, the importance of such great natural-history laboratories as our national parks becomes more evident to every nature-lover, and our appreciation of the efforts of park directors, superintendents, naturalists, rangers, and nature-guides, to preserve the native wild life in as nearly as possible an undisturbed condition, waxes into enthusiastic praise. Along every line the official nature-work being done in the parks merits every encouragement and support.

A YELLOWSTONE BEAR STORY



It was down at the camp on Bear Creek that Hardpan interviewed the bear. He was not hunting bear just at that time, but eating berries with both hands and all his might and mouth. A rustling in the bushes indicated the approach of a bear. He awaited the encounter with stern courage, resolved to stab the bear with his jack-knife at the moment of the fatal hug; for, in changing his position to get a better view of the foe, he had accidentally left behind his hat and his gun. It was a very large bear, to judge by the rustling in the bushes. In fact, continuing to judge, with that rapidity which brave men show in the face of danger, he judged that there were several of them, all large. Unfortunately, stepping across to a point about half a mile farther down the creek, to get a still better view, he lost so much time (a full minute and a half), that the bears escaped. In a solemn procession to the berrying-ground, we saw the very bushes that had rustled, and recovered the hat and rifle.

ROSSITER W. RAYMOND
"CAMP AND CABIN" (1880)

WILD FLOWERS ON THE YELLOWSTONE OUTING

BY ELSIE M. ZEILE



ONE of the delights of the Sierra Club's visit to Yellowstone National Park was the profuse and varied display of summer wild flowers.

As a prelude to that symphony of form and color, three striking blossoms saluted us en route as our train sped by. From grassy banks waved scarlet Indian Paintbrush and purple Fireweed, close neighbors, but unrelated. Near the end of Great Salt Lake Cut-off, early risers beheld in bloom a colony of Blazing-stars which bordered the tracks. These moon-colored petals expand resplendently at dusk and shrivel as day advances.

At the first camp our introduction to boiling pools and geysers included also four plants which were to greet us frequently throughout the trip. Most abundant was the Fringed Gentian, Wyoming's state flower and the dominant one of the park, appropriately beginning to loosen its twisted buds. Then there were clumps of nodding Harebells—the Bluebells of Scottish poetry—and those products of flowers, ripe Strawberries, awaiting keen palates, and Thistles standing singly or in groups. Even the stamens and upper leaves of these formidable beauties were toned in delicate pinks.

By their recurrence in similar situations certain flowers compelled notice. Perhaps those in meadows predominated because of many lakes visited. In these grassy expanses members of various families vied for ascendancy. Here grew lavender Asters, and spikes of Rein Orchis and Elephant's-heads, the latter rarely examined for the significance of the apt name—ears, forehead, and trunk in miniature of the largest of beasts. Again there were sky-blue Gentians and Lupines, feathery Goldenrods, areas of Queen's Lace upholding dainty white umbrellas, and pink or red Paintbrushes, these last akin to the Elephant's-heads. Along streams in the open, rounded clumps of Pink Monkey-flower and Languid Ladies (Lungwort), and lesser groups of fleshy Red Orpine dipped their roots in the lapping water. The modest white Grass of Parnassus lurked in moist nooks, as did stands of Hare's-tail, a fluffy-headed Sedge.

In dense forests, especially on Mountain Creek, mats of Twin-flower, the exquisite bells poised on fragile stems, challenged the skeptics of fairyland. In sunlit spaces thrived yellow Arnica, Pine-drops, Wintergreen, creamy Lousewort—unhappily named—rising from rosettes of ferny leaves; and berried sprays of Creeping Juniper, and carpets of dwarf red Huckleberries, relished by bears and hikers alike. At the fringe of woods graceful Geraniums and those stately cousins, Monk's-hood and Larkspur, lent dignity to the trail.

Certain other plants, because of their peculiar habitats, made as distinct impressions as did the marked absence of vegetation in the weird forest of Lodgepole Pine near Brimstone Basin. Sheltering the hidden spring at Indian Pond a splendid company of Giant Fireweed (Willow-herb) seemed to have purposely found lodgment there to aid in quenching thirst. Near the bleak top of Mount Sheridan occurred the birth of an alpine meadow, where Asters, Buttercups, Buckwheat, yellow Composites, and grass-seedlings daubed the gravel uncovered by retreating snow. Ponds were hidden away as fawns are, and like them mottled, but usually with the stalwart Water-lily, the seed-pods of which were as unusual as the giant yellow cups and green saucers. One pond lying close to Yellowstone Lake, like a chip from a jewel, mothered a floatage of sagittate leaves and clusters of white flowers. Above this placid home of Arrowheads danced a gay assemblage of bright blue damsel-flies.

Still other flowers possessed singular characters. The virile Green Gentian, mostly isolated, reared its small-blossomed pyramid sometimes four feet in exposed situations. Strange are plant affinities! Who would associate this with the Fringed Gentian? In fields swayed the ethereal Wild Flax. Within quiet woods infrequent groups of Coral-root and that paler saprophyte, Phantom Orchis, stood by decaying logs like shy princesses transfixated beside mouldering castles.

The finest flower-gardens were viewed from Heart Lake to Snowshoe Cabin via Snake River, thence along the southern park boundary, continuing by Fox and Lynx creeks. Here we passed through a paradise in its prime of blossoming, a luxuriant growth, untrampled and rarely visited. Along the summit of Big Game Ridge ranks of blue Lupine and russet Sorrel enlivened the shale, and cushions of fragrant snowy Phlox nestled in sand. Near Two Ocean Plateau, crossing the Continental Divide, pale Columbines, freely branching, softened the talus; and Mariposas, wine-splashed,

peeked above grasses. In the chalices of these regal lilies green long-horned beetles, pollen-dusted, still slept on dewy mornings. Most all other blossoms seen previously reveled in this enchanted wilderness, emblazoning stream-banks, glades, and meadows.

Finally from busses speeding over Dunraven Pass we glimpsed the last review of the flower-show. Lungwort, Paintbrushes, Monkey-flowers and others, familiar blossoms by now, lined the roadside as do little children of Switzerland, and seemed like them to wave us farewell.

THE NATIONAL-PARK IDEA



MR. HEDGES then said that he did not approve of any of these plans—that there ought to be no private ownership of any portion of that region, but that the whole of it ought to be set apart as a great national park, and that each one of us ought to make an effort to have this accomplished. His suggestion met with an instantaneous and favorable response from all—except one—of the members of our party, and each hour since the matter was first broached, our enthusiasm has increased. . . .

I do not know of any portion of our country where a national park can be established furnishing to visitors more wonderful attractions than here. These wonders are so different from anything we have ever seen—they are so various, so extensive—that the feeling in my mind from the moment they began to appear until we left them has been one of intense surprise and of incredulity. Every day spent in surveying them has revealed to me some new beauty, and, now that I have left them, I begin to feel a skepticism which clothes them in a memory clouded by doubt.

DIARY OF NATHANIEL PITT LANGFORD, 1870
"THE DISCOVERY OF YELLOWSTONE PARK—1870"
Haynes' Edition (1923)



PHLOX
Yellowstone National Park
Photograph by Dr. C. O. Schneider



HAREBELLS
Yellowstone National Park
Photograph by Elsie M. Zeile



CANYON OF THE YELLOWSTONE

From below the Lower Fall

Photograph by Walter L. Huber

THE YELLOWSTONE OUTING OF 1926

BY NEILL C. WILSON



THREE is a time of year when pulses quicken. It starts with the overhauling of the old, familiar dunnage. Pine-needles, fern-leaves, and the dried flat ants of yesteryear are shaken out. Fishing-tackle is examined, with dire peril to the vases and clock on the mantel. The mid-summer madness has begun. Its tempo rapidly increases along about the time the dunnage-bags, tight and overweight, are delivered to the baggage-master. And its wild crescendo arrives with the reunions of the starting moment at Oakland Pier.

Friday morning, July 10, 1926, was more than ever one of these purple moments. For the twenty-fifth summer outing of the Sierra Club was to find us off and away to the most ambitious jaunt of all—off to the Yellowstone country!

That was the morning of excitement! Old friends of other outings, separated during the past months in space but never in spirit, finding each other again in the milling crowd, locked arms and rejoiced. The train from Los Angeles rolled in. How backs were thumped and hands pumped! We were together once more, the trail was before us, and many a camp-fire would light our faces beneath the Wyoming stars.

It took a long, long train to pile that crowd aboard. It was a Sierra Club special, and it had two diners. The first day was spent eating, grinning, and reading up on the Yellowstone. The opening sentence in the Government's Yellowstone pamphlet took our fancy. It said: "The Yellowstone National Park was created by the act of March 1, 1872." This was a graceful tribute to the powers of Congress, but a frank affront to the evolutionists.

At Salt Lake City we heard the magnificent organ in the Tabernacle of the Latter-day Saints, together with a mixed choir of two hundred voices, in a recital for our especial benefit. We saw the famous Mormon city afoot and by bus; and we all went swimming in the Great Salt Lake. What a sight! Two hundred Sierra Clubbers trying to navigate in water so thick that it almost preserved footprints. Warm and buoyant the water certainly was; and flavored

with twenty-two-per-cent salt. We who were about to spend a month among Yellowstone's hot springs and heated rivers had entered upon an excursion splendid to view but already queer to drink.

The missing members of the clan were rapidly arriving. One dropped in on us at Salt Lake City via air mail. The Sierra Club was like a snowball, getting bigger as it rolled along. At dawn of Monday, July 12th, our train reached West Yellowstone station, and the porters certainly rubbed their eyes at what tumbled forth. Gone were the skirts and mufti of the towns, and "O.D." was a-bloom in the land. A marvelous breakfast awaited us at West Yellowstone. But ours were not yet mountaineers' appetites. We sorrowfully left most of it for the bears, and climbed aboard the stages for the park.

And an hour later we were arrived, passing on the way that point, near Madison Junction, where the whole national-park idea received birth. For it was but a few miles west of our first night's camp-grounds, a century ago, that a group of pioneer explorers conceived the whole grand plan of preserving forever, for the use and enjoyment of all the people, this region of spectacles and wonders. Yosemite, Sequoia, Rainier, Glacier, Canada's Jasper Park, are but a few of the national parks whose preservation sprang from that epochal camp-fire meeting.

We camped for the night under the trees on Nez Percé Creek. There Horace M. Albright, Californian, Sierra Club member, Assistant Director of the National Park Service, and Superintendent of Yellowstone National Park, welcomed us into his great garden of spouting waters. We were shortly to find everywhere the evidences of his prodigious and kindly labors. We were to find literally every three-foot stream bridged with a new log, and that log—shades of the Kings and Kern!—leveled off neatly on top with an adze. We were to find the whole park personnel alert to our every need and query. We found, too, that Dr. Vernon Bailey, beloved trailmate of the '24 Glacier Park trip and chief field naturalist for the Government, was once again with us. On this night Mr. Colby gave us the bright outline of our month's plans. He warned us, among other things, not to drink too much cold water. How everybody cheered!—every visible spring was boiling hot.

Next day we toured the Lower Geyser Basin, stared into frothing pits and seething mud-volcanoes, and had the novelty of walking

logs over running water hot enough to boil a boot. Some beheld the great Fountain Geyser go off with a rush and roar. Others traipsed across the white plains and sank to their hubs in material that looked solid, but acted like antiphlogistine. Ernest Dawson, Julie Mortimer, Alice Carter, J. O. Downing, and Norman Clyde slipped away from us at this point in their car, and presently were seventy-five miles away, examining the Grand Teton.

From now on your historian knows few dates. Each day melted into the next in the good old Sierra Club fashion. We tramped to the Upper Geyser Basin surrounding Old Faithful, camped on Fire-hole River, and there had our first experience with natural hot water exactly in camp. This convenience could not be enjoyed by all; so the men's camp took it. There we were visited by no less than the Marquis de Claire de Tappaan, just back from Europe, with cane and tasseled garters. Later Tap invested in a couple of tents or something at the store near Old Faithful Inn, and we saw the English togs about his limbs no more. That afternoon we had snow. Our camp blossomed forth with every known type of tent or burrow, except those so-called infallible devices that had failed so hilariously on Browns Pass in Glacier Park. That night we dedicated the new open-air theater of the hotel-camp. We did this with some fine speeches and some awful singing.

The geyser displays in this vicinity, of course, were superb. Old Faithful went off regularly every sixty-six or sixty-seven minutes. The Riverside flung its majestic fire-hose of a stream across the Firehole River three times a day. Some of our party beheld the Castle and the Comet in action, some saw the Grotto, there were constant displays of nature's exuberance everywhere, and two misguided souls spent a patient morning waiting for the Giant, only to find that its latest eruption had been last February.

We were pointed out by the "sagebrushers" and "dudes" around Old Faithful as "a bunch of nuts that had hiked all the way from California."

Three days and two nights in this Upper Geyser Basin, and then the pack-train came in. Somehow the trip never seems really begun until the "Hi-yi-whoopee!" of the packers and the jingle of the bell-mare is heard in camp.

So we moved on to Shoshone Geyser Basin, passing Lone Star Geyser on the way. It conveniently erupted for some of our lunchers,

going off so suddenly that they threw their chocolate into the air and swallowed whole hardtacks.

Eight miles beyond Old Faithful, on this day's walk, we crossed the Continental Divide at 8150 feet. The Continental Divide was softly wooded with lodgepole pines, and had none of the austerity of the more northerly passes of Glacier Park.

We camped a mile from Shoshone Lake, close to the geyser formations, in a marvelously beautiful glen. Hot water was all around in pools and springs, convenient hot plumbing right in the middle of commissary. Fish at this camp were so plentiful that everybody, including all the novices, brought in bunches of them like grapes. This whole camp was delightful. The girls trailed down one side of Shoshone Creek, the men down the other, and the married folk were piled up on the rocks somewhere, while the fourth sex—the commissary bunch—made itself comfortable as usual among the sacks and boxes. It was here that Mr. Colby, scanning the shore of Shoshone Lake with field-glasses, beheld Tap's BVDs fluttering on a limb and let out a shout for Dr. Bailey to come and classify the two new swans. It was also here that Dawson and his party, stepping high, wide, and handsome, returned to the fold with the Grand Teton conquered for the Sierra Club. We hated to leave our Shoshone camp. But we knew there were great days ahead.

A trip is never a trip without a little grief. We got ours now. The packers, who were real nice boys but not very sure which end of a pack-mule was north, left one string of animals behind, completely packed, at Shoshone Lake. They just rode off and forgot 'em. When we got to Lewis Lake, forty pedestrians sat on the ground and sighed for their blankets and cold cream. These orphans were quickly taken care of. Everybody who had two blankets lent one, and everybody who had three lent two. Presently the bereft folks had more bedding than anybody else in camp. Meanwhile an earnest lecture had been delivered to the chief packer by a well-known mining lawyer of San Francisco, abetted by a large and leading member of the Los Angeles bar. Superintendent Albright also took a hand and sent Sam Woodring, his chief ranger, to ride herd on the Wyoming cowboys. Sam is an old army sergeant; he was chief packer for General Pershing in the pursuit of Villa.

The morning following the temporary debacle of our Service of Supply at Lewis Lake saw also the arrival of three husky deep-



SOUTH ARM OF YELLOWSTONE LAKE

SIERRA CLUB BULLETIN, VOL. XII.

PLATE CIV.



VERNON BAILEY
Biologist, United States Biological Survey

lunged trucks. They were to take sixty or so down to Jackson Hole. The first to get off, with whoops and cheers, was the "four-day truck" of eighteen, ten of whom were climbers bound for the Grand Teton. Lipman was king. The other trucks were loaded with fishermen and scenery lovers.

While the climbing party and their companions made a base-camp at Bradley Lake, close under the sublime monarch of the Teton range, the other truck parties camped at Jenny Lake. They came back enthusiastic over its beauties. These mirror-like waters close up under the Tetons are among the most beautiful of all the mountain lakes known to the Sierra Club. The three truck parties returned independently to Lewis Lake, which the main party had meanwhile abandoned for Heart Lake a few miles east. One of the truck parties camped at Lewis Lake for the night, and thought it advisable to stand watches throughout the night on account of bears. Horrific experience! While two of the guardsmen were doing their midnight stint, fearsome growls and scrapings were heard out in the darkness. The guardsmen leaped to their feet, clutching clubs. Silence, then growls again and the unmistakable champing of teeth. Were the sentinels affrighted? Not they! They gripped each other tight, each urging the other to be himself. If they must die, it would be bravely, and locked in each other's embrace. More hideous snarlings. The sentinels gave a shout, a leap, sprang upon the blood-thirsty brutes with their bare hands, and found—two maidens, screaming with delight, and begging them to lay off with those clubs! Still, one never can tell what lurks o' night in the woods.

All members of the expedition reunited at Heart Lake. With all sorts, shades, and sizes of hot water to be had by simply reaching into Mother Earth with a bucket, laundry proceeded to blossom on every bush. Here, too, the bathing was grand. The temperature of the water in Witch Creek was *à la carte*. In a strip of water two miles long could be counted two hundred bathers, ranging in hue from lobster-red to dawn-pink.

A good scramble up Mount Sheridan (10,200 feet), immediately back of the Heart Lake camp, was enjoyed by everyone. The view was superb, revealing Yellowstone Lake for the first time and much of the wilderness that tourists never penetrate. Then occurred one of those easy strolls onto the further end of which somebody tacked five miles unexpectedly. It led down the Snake River to Harebell

Snowshoe Cabin, right on the southern boundary of the park. The country was rolling, beautiful, merry with flowers, and stocked with game. The next day we crossed the backbone of the Yellowstone plateau by climbing Big Game Ridge.

That was a splendid day! Dr. Bailey took one fortunate group aside and led them up a concealed cañon to glimpse two hundred or more elk. Nearly everyone climbed Mount Hancock (10,100 feet), a bull's-head peak on the crest of the Big Game Ridge. Herds of elk, a dozen or a score to a herd, were seen by all. From a point on the day's trail the towering summits of the Tetons were also visible, and those who had scrambled to the top of them looked back and wondered how come. Wonderful wild-flower panoramas were enjoyed. Night was spent in a pleasant camp at Fox Creek, and the next day we again pushed on across the Continental Divide at 9775 feet and entered the glacial valley of the Upper Yellowstone. Domes, sculptured rocks, and steep cliffs here suggest our Sierra country. The Yellowstone plateau in general is so high, however, that all surrounding peaks seem dwarfed, except the startlingly abrupt Tetons south of the park's boundaries.

This was the supreme wilderness of the official Yellowstone outing. Moose were evident on every hand, although not so numerous as the elk and deer. Few evidences were seen of human travel; we encountered but one party, a group of young men on horses. Our camp the first night was on a point of land reached by a long, lean, and limber log. A few fell in with loud splashes and louder cheers, while cameras clicked and heroes leaped to the rescue. Here the fishing was very fine. Some of the party climbed The Trident and other peaks.

We moved camp for a while every day. Many climbs and vistas were enjoyed from the eastern ramparts of the upper Yellowstone Valley en route. A party consisting of Clyde and three care-free playmates tried to climb The Turret (10,400 feet) from the west side. This most peculiar shaft of volcanic conglomerate enticed them up a steep heart-breaking chimney only to find an overhanging cliff of brittle material one hundred feet from the top. The peak successfully turned the climbers back. Parties scouring these interesting peaks and ridges brought back numerous samples of petrified wood. Dr. Bailey told us much of the geologic history of the region, and informed us that one prehistoric grove, now existing only in fragmentary fossils, was closely akin to our own California redwood.

At Beaverdam Creek we reached the shores of Yellowstone Lake. This grand fresh-water sheet (7735 feet high) is a quarter-mile higher than Lake Tahoe and larger by sixty-seven square miles. Here our supplies were augmented by a shipment on board the gasoline launch of the United States Bureau of Fisheries. Every department of the Government was working to make our stay a success; we could have had the Army and the Navy if they had been wanted. The jaunt down the eastern shore of the lake led through winsome woodlands by day to attractive camp-sites at night. At Indian Point we found further transportation in the form of the familiar trucks.

From then on the journey was through tourist haunts, and the miles skimmed past rapidly. Stops were made at the Mud Volcano and the Dragon's Mouth, a weird cave of hissing waters. Night found us amid the sublimity and melody of Yellowstone Grand Canyon and Falls. But the hike was not over. Doc Brown fixed many a blister wrung from enthusiastic clambering about the sights of the Canyon region. Hearing that the disintegrated rhyolite of the Canyon's walls was so loose, lofty, and steep as to be inaccessible, a party of Lipman's irrepressibles stormed the east side below the Lower Falls and fought their way successfully from bottom to top. A few days in cool shade amid the impressive scenes of the canyon rim, and the club rolled on to Mammoth Hot Springs, where the annual show was given, and then out by way of West Yellowstone.

It was a glorious, an ever-memorable trip, a fitting celebration of the Silver Jubilee of the club's outings. It was not monumental in the strict mountaineering sense; except for the episode of the Tetons, there was no climbing such as we can enjoy almost daily in our Sierra. Its impressiveness did not lie in forest ramblings; for the soil of the Yellowstone plateau is thin, and the lodgepole pine is but a sorry echo of the majesty of Sierra conifer forests. But in intimate study of the marvels and caprices of nature, as expressed in seething pools and shooting waters; in bewildering wild-flower gardens and great game parks; in the astonishing colors of cañon cliffs, the beauty of far-flung lakes, and the might and artistry of waterfalls, as well as in the warm companionship of a congenial party superbly led, we had experiences that we shall never forget.

CLIMBING THE GRAND TETON



I. THE FIRST SIERRA CLUB PARTY

By ERNEST DAWSON

THE trail to the Grand Teton begins at the Elbo Ranch. There we arrived about two o'clock in the afternoon of July 13, 1926, had lunch beside a cool stream, sorted and distributed the food and cooking utensils, and shortly after three o'clock were on the trail. The party consisted of Norman Clyde, Julie de C. Mortimer, Alice Carter, J. C. Downing, and Ernest Dawson.

We followed a beautiful little stream through glorious trees comparable to the best of our Sierra forests. From the warm flat Geyser Basin to this cool wild spot was a contrast indeed. Rain began to fall a little after three and kept up fairly steady until seven that night. At first we sought the shelter of trees, but soon saw we would get wet anyway and went ahead regardless.

There were several forks in the trail, and here some of the misinformation gleaned from gas-dispensers, rangers, and resort-keepers along the road began to come into play. We had been told always to take right-hand trails. About one and a half miles from Elbo Ranch a trail leads to the left to Taggart Lake and thence continues as a good horse-trail into Bradley Cañon, where at about nine thousand feet is the base camp used by the guides in taking parties to the summit.

We followed the right-hand trail that leads to Bradley Lake, crossed to the right-hand side of the lake (north side), at its outlet, and continued with a rather dim trail along the ridge between Bradley Cañon and the next cañon north.

The trail was steep and our packs felt heavy, but we continued steadily until near dusk, when we came to a beautiful little lake, where we found dry wood and fairly dry sleeping quarters.

By quarter-past six next morning we had breakfasted, stowed our sleeping rolls, and with light packs started for the top.

The lake at which we camped is not shown on the map, but we judged it to be over nine thousand feet elevation. We followed up the little stream and shortly came to another lake somewhat larger.





THE TETONS
Photograph by Dr. C. O. Schneider

Above was an immense cirque with towering peaks on each side. Led by Norman Clyde, we made for the ridge on our right (north), which we reached in about half an hour. The drop there into the next cañon was almost sheer. Clyde made several attempts to get down this, but without success, and we afterward learned that we probably could not have made the summit by that route.

Our next endeavor was to scale the main front of the cirque, and this was done more easily than seemed possible from a distance. A long ice- and snow-field had to be crossed, but the sun had softened it and we had no special difficulty.

Arriving on top of the ridge we surveyed the situation, and, though the peak was not in sight, we surmised that it must be on our right (north). While the rest of us lay down under some timber-line pines, Clyde climbed a peak to the north, five hundred feet or more above us, and from that vantage-point judged that the main cañon to the west, the upper part of Bradley Cañon, was the best route. It was necessary then to climb slowly down a long chimney-like cañon, dropping fully five hundred feet. We found ourselves then (at about 10:30 o'clock) only a few hundred feet above the base camp used by the guides. We had lost four hours of time and climbed up and down about a thousand feet of elevation which we should have saved had we been given the correct trail information.

Once in the right cañon, it was a long drag to reach the saddle at its head. There was no semblance of a trail or of ducks, and, as we were the first ones to climb in 1926, there were no marks in the snow. There was no special difficulty in this part of the climb, however, although there was one long snow-field to be crossed at a bad angle and there were several minor cliffs to be passed.

From the saddle, which we reached about noon, we looked down into the head of a deep cañon. On our left a magnificent peak with a large snow-bank or glacier at its base headed the west side of Bradley Cañon. To our right lay the Grand Teton; but we could not see the top, nor was there a practicable route visible.

After surveying the cliffs, Clyde started to the right and soon motioned us to follow—a rather difficult piece of work climbing along narrow ledges, around cliffs, and up and down some smooth faces of rock. Fifteen minutes of this brought us to a long steep chimney with a little stream running down it—snow-banks protruding from the sides, and occasionally a waterfall to be climbed around. It was

steep, hard going, yet not particularly dangerous, except for rolling rocks. At the top of this chimney we reached another saddle, the other side dropping off precipitously into the head of a deep cañon.

And now came the real climb. About the only useful hint that had been given us was that the climb was to be made along a shelf on the north side. Clyde scouted ahead along a rather narrow ledge obstructed with large rocks and above an almost sheer drop of two or three thousand feet. It was here we began to use the ropes. They helped to steady the nerves a little, even if not needed otherwise. After a few hundred feet this shelf led us to a still narrower shelf, eighteen to thirty inches wide, about the same height and about thirty feet long. This shelf was literally gouged out of a sheer wall, with probably a three-thousand-foot drop on one side and straight up on the other. The saving grace was a side to the ledge several inches high that ran the whole length. It became a case of lie on one's stomach and wriggle along, pushing knapsack or camera ahead.

We all breathed more freely when this was passed, although the ledge was still narrow and the drop was as great as before. In another thirty feet we reached what might easily have been an impasse. The ledge ended, or at least thinned and sheered down at a dangerous angle, and from that point on was covered with ice and snow. The only apparent outlet was a crack in the not quite perpendicular wall. A tiny stream was trickling down, and just out of reach was a projecting cleft that once gained would make possible an ascent, by using all-fours, bracing and clinging, and gradually working one's way up. Clyde tried it first and failed. Then I climbed on his shoulders and tried it, but looking down from this uncertain perch, where a slip might have been fatal, I remembered my wife and four children and decided not to risk it. Only for Clyde it is likely that at this point we would have turned back; but at this critical juncture he made a little jump, pulled himself up, and gained the crack above, getting soaked by the icy stream on the way. Worming his way up the crack thirty feet or more, he threw a rope, and one by one the rest of us scrambled up or were pulled to a somewhat safer ledge.

Thence to the summit was almost an hour's work, using the rope much of the time. There were several icy slopes that required care—steep, narrow chimneys and a number of uncomfortably narrow ledges. We reached the top (13,747 feet) about 3:30 in the after-

noon—over nine hours of almost continuous climbing from our base camp.

The atmosphere was clear and the view perfect. The whole range of the Tetons and the Jackson Hole country could be seen, and perfect gems of forest-fringed lakes lay at our feet. The weather could not have been more favorable; even on top we could have dispensed with our coats. The register showed fifty-five names, most of them placed during the past three years, during which professional guides have taken parties to the peak.

At four o'clock we began the descent, mindful that we must get back over the worst part before dark. While the return was faster and called for less effort, it was, if possible, a more ticklish piece of work. We used the ropes freely, cautiously making our way down. There were bad places and we were getting tired, but the coming darkness warned us to hurry. One long snow-bank gave us considerable trouble on the return. The snow was soft going up, but now it was frozen hard and would not hold. It required the utmost care to cling to the rocks along the edge of the snow-bank.

About eight o'clock we reached the bottom of the steep cañon that we had descended that morning. As our packs had been left at our base camp, it was necessary to retrace our steps up this difficult way, made doubly difficult by the dim light. How we worked our way up the chimney and then down the head of the cirque on the other side would make a story in itself. The clouds shut out much of the light of the stars; our only light was a single candle and an occasional flash of lightning, yet Clyde led us down the cirque wall using almost identically the route that we had taken coming up.

The final difficulty was the large snow-bank near the bottom, where the snow was now frozen and was too slippery to attempt. We were obliged to work along the edge of the bank, slipping and clinging, until finally Clyde was able to chop a path with his hatchet that enabled us to cross. It was quarter-past one in the morning when we reached camp. We had been over nineteen hours making the round trip.

II. SOME HISTORY AND A HOLIDAY ROMP

BY NEILL C. WILSON

The Grand Teton is a needle of gleaming granite, its summit 13,747 feet above the sea-level. It shoots straight up for the sun and stars

some six thousand very abrupt feet above the surrounding plains of northwestern Wyoming. "Pike's Peak would have to be higher than Mount Everest to look as high from Colorado Springs as does the Grand Teton from Jackson Hole," wrote one traveler who successfully scaled this rocky shaft in 1923.

No one ever forgets his first glimpse of the Grand Teton. The cluster of mountains of which it is the tallest is a perfect jewel-box of a range. Only twenty-five miles wide by twice as long, it nevertheless contains some of the most rugged wilderness in the United States. The range springs with extreme suddenness from Jackson Hole on the east side and Pierres Hole on the west—both valleys famous in the frontier epic of the West. The Teton range does not bother itself with foothills; it starts from the plain and goes straight up. But it has managed to collect some of the most charming wooded lakes along its eastern base that ever graced a chain of peaks or beckoned to big-game hunter or mountaineer.

The whole country roundabout is storied. "Tetons" (meaning "breasts") was first applied to the picturesque mountain chain by early French trappers. The Astorian expedition found the name enjoying currency when it passed the mountains en route to the Oregon country in 1811. John Colter, famous trapper and frontiersman, made an adventurous visit to the Blackfeet Indians in 1807, and beheld the Grand Teton, reporting its majestic height above the plains. He is the first white man who is known to have looked upon this mountain. For half a century the gleaming column was a guiding landmark to wagon-trains and to adventurers from all quarters as they moved westward. The hunter, the trapper, the renegade and desperado made this region their own. The queenly peak itself became "the most noted historic summit of the West," according to Hiram M. Chittenden, historian, and authority on the American fur trade. It was the focal point of many trails; the creaking, westward-plodding caravans passed that way; but the lofty beauty repulsed as she devastated the hearts of all admirers. Not until 1872, and not again until 1898, was her haughty summit successfully visited by man.

There were attempts, however. Even in the days when the West offered adventure for all on its open plains, and needed no help from lofty summits to add to the zest of life, one or more parties tried to scale it. At a point to the west, and a few hundred feet below the





THE TETONS
Photographs from United States Geological Survey

ultimate summit, there remains today a mysterious stone enclosure, roughly round, once three or four feet high, that shows unmistakably the handiwork of man. Fifty years ago Jackson Hole had a tradition that a trapper named Michaud had tried repeatedly for the summit, and gave the year of his efforts as 1843. The tradition added that this gallant pioneer of the race of mountain-climbers was finally forced to yield in defeat.

The successful expedition of 1872 consisted of Captain James Stevenson, of the Hayden Survey, and Nathaniel P. Langford, the first superintendent of Yellowstone National Park. Their conquest was reported in an article written by Langford, published in *Scribner's Monthly*, June, 1873, in which extraordinary labors and perils were recounted with vivid pen. Two more parties moved on the peak during the 'seventies, but were firmly rebuffed. They followed closely the Stevenson-Langford route up the south façade as far as the lower west peak and found the artificial stone enclosure, but studied the enormous wall of the main peak opposing them and called a halt to further enterprise. Thereafter some unsuccessful attempts were made by W. O. Owen, of Wyoming, whose resolution finally led him to organize the Rocky Mountain Club's expedition of 1898. This expedition seems to have found in the Rev. Frank S. Spalding, afterwards Episcopal Bishop of Utah, the right mountaineer to lead his three companions, Owen, John Shive, and Frank Peterson, up the tricky route to the top. Spalding and Peterson returned again to the summit the next day and finished raising the cairn that today stands there.

Then ensued one of the most acrimonious controversies in the history of American mountaineering. Owen claimed full personal credit for the first ascent of the mountain, and published a statement that the Stevenson-Langford party of 1872 had never reached the true summit. He enforced his case with letters of opinion from various parties interested, but marred it by suppressing an important communication from one authority that gave support to Langford and Stevenson. Owen wrote in the *New York Herald* of September 18, 1898: "The last and very convincing proof that these gentlemen did not reach the summit lies in the fact that we found not a shadow of a mound or other evidence of man's having been there before." In *Forest and Stream* for November 5, 1898, he wrote: "They couldn't even spare the time to chisel their names in

the granite, build a small monument of rock, leave a can with their names in,—anything, however simple, to prove to subsequent climbers that man had been there before them.” Owen made great capital of this omission on the part of Langford and Stevenson, holding it as *prima facie* evidence that they never had reached there. However, if leaving a cairn or record of a first ascent on even a great mountain is the unfailing habit of the true mountaineer, then John Muir was not a true mountaineer and never made a first ascent!

Owen further marred his case by failing to give due credit to Spalding, the man who actually led him to the top, and who, with Peterson but not with Owen, made another ascent to the top the next day. Spalding himself maintained silence during most of the controversy, but finally wrote to Langford: “If you say you reached the summit of the Grand Teton there is no reason why I should not believe you. Whether I was first or thousandth the climb was worth while. I think, if you will permit me to say so, you are in fault, as is also Mr. Owen, in exaggerating the difficulties of the ascent. . . . If you did not reach the top when you started out to do it, you are a mighty poor mountain-climber in my humble judgment; and I cannot understand why Mr. Owen failed so many times before he succeeded.”

The verdict of Chittenden, the historian who carefully weighed the evidence and reported on it to *Forest and Stream* in a letter dated February 14, 1899, gave full credit for priority to the Langford-Stevenson party of 1872, and severely criticized Owen for his trivial evidence to the contrary and his general lack of sporting spirit.

The climbs of Spalding and Owen in 1898 were the last visits to the summit until August, 1923, when two parties succeeded almost simultaneously. The first of these included three young men from Missoula, Montana, by name Andy de Pirro, Quin A. Blackburn, and Dave F. DeLap. Two days later a party of two, Albert R. Ellingwood and Miss Eleanor Davis, arrived on top. Miss Davis, standing on the historic summit late on that August afternoon, was the first woman to achieve the ascent.

Nearly fifty persons ascended this “American Matterhorn” in the two years following. As frequently happens with a notable sporting mountain, what had long been “impossible” and had then become “perhaps barely possible” had passed through the succeeding stages of “possible” and “reasonable” and had now become a simple

holiday romp. I had the good fortune to be a member of a party that found it in the last stage. We attacked the lofty mountain wholly as a romp, and never was a great mountain assaulted by a gayer or a more confident crowd.

We had good reason to be confident. The mountain had been successfully bagged by five of our good friends, Norman Clyde, Ernest Dawson, Alice Carter, Julie Mortimer, and J. O. Downing, only a few days previously. Clyde had celebrated his victory by darting off alone to try Mount Moran (12,100 feet) "while resting," and had left word that he might get down in time to join us on a return to the Grand Teton.

It had been raining all morning when our party of nineteen sludged into the Jackson Hole country in a careening truck, July 18, 1926. Our fellow trampers of the Sierra Club were encamped at Lewis Lake in the Yellowstone National Park, fifty miles to northward. All heads were under light tarpaulins, seeking shelter in the open truck, when suddenly the gray clouds parted and somebody looked out and gave a shout. There stood Mount Moran, with an icy ladder of a glacier upon its front, then a score of lesser spires, all blue-white and gleaming, and then the Grand Teton sprang into view. *Sprang* is the right word! The sudden upleap of this glittering landscape behind Jackson Lake was like that of an athlete going over a crossbar. The only alpine prospect I know in America that compares with it is the sudden ten-thousand-foot rise of the Sierra Nevada above Owens Valley in eastern California.

Shouting and singing with the joy of the prospective climb, we drew up at the little settlement of Moran. And there we found Norman Clyde waiting for us. All doubts of success were now dispelled and we were soon swinging along the trail to camp at Bradley Lake. Here, on the shore of this entrancing water-mirror, we established light tents for our non-climbing companions and cooked an evening meal. Supper over, the climbing party set out for a base camp on Bradley Creek at about 9500 feet. There were eleven climbers: Norman Clyde, William Horsfall, Manuel E. Jalaniich, Robert L. Lipman, Walter B. Marble, Marion Montgomery, Helen Phillips, Joseph Shinn, Norman Waite, Margaret Willis, Neill C. Wilson.

Early in the morning we were on our way. Up the long talus, up over tongues of snow, up along an east-and-west medial moraine

that lay spread out for us like a causeway—up and on we pressed for our first goal, the saddle, where we took refuge from a gusty storm of hail and snow.

We followed in general the route of the Dawson party to the summit, for we were led by Clyde, who had been with them. We were not blest as they were, however, with fine weather, for rain, snow, and thunder enlivened our climb.

The summit at last! We leaped for the flagpole at the peak. We had attained to the parlor of our haughty lady! But she greeted us shortly, and flung hail in our faces, and snapped at our tingling fingers with frosty teeth. Our haughty lady was more like a snarling wolf. "But it's a great view up here, anyway," we assured one another. "We saw it fine from the lower end, looking up."

Brief breaks in the weather showed us a mighty tangle of peaks whose spires were all below and around us. A few miles to the east, but a long way down, we saw glimpses of golden grain rippling on the plains. From our arctic zone to yonder temperate, from our winter to that summer, was only three miles horizontally and about a mile and a quarter vertically.

It was after two o'clock, and the thunder was growling with growing vehemence. We closed the glass bottle that now contained about seventy names, thrust it back into the cairn, and started down.

Another night at our cozy little camp at timber-line, and at noon we were back at Bradley Lake. Our haughty lady of the mountain peak had chosen to declare it a sunny day. She leaned from her balcony and laughed down at us.

"Well, how was it up there?" asked our truck-driver next day as we threw our packs down at the Hollywood Ranch. He had been living in idle luxury while we toiled; there was still about him an air of plenty of ham and eggs. "I'd like to have gone along with you people," he added; "but I couldn't think of a single thing I had ever lost up there."



CANYON OF THE YELLOWSTONE
From the South Rim near Canyon Camp
Photograph by Walter L. Huber



THE TRIDENT
Yellowstone National Park
Photograph by Walter L. Huber

MOUNTAINEERING IN THE ROCKIES

BY NORMAN CLYDE



I. MOUNT MORAN, WYOMING

IT was with considerable interest that on the evening of July 15, 1926, I scanned the beautiful and imposing form of Mount Moran from across Jackson Lake. Although desirous of setting foot on its summit, I had only vague ideas as to how this feat might be accomplished. However, after securing lodging for the night at Moran, I gleaned some information during the evening, and on the following morning obtained more specific details from Mr. Sheffield, proprietor of the hotel, who had made numerous hunting excursions into the vicinity of the mountain. From him I learned that two feasible routes had been found to the summit: one across a hanging glacier on the face of the peak, thence up a long and very steep snow-chute to a point immediately north of the two peaks which form the summit; the other, over the rocks to the north peak, thence across a knife-edge to the higher one.

Having obtained the information desired, I immediately set about securing the outfit necessary for the undertaking. After renting a boat, I attempted to procure an ice-axe, but to no avail. The best substitute appearing to be a prospector's pick, I was fortunate in being able to borrow one of these. Gathering up my equipment, I went down to the lake shore late in the forenoon and proceeded to row across the lake to the base of Mount Moran, a distance of some ten miles. A strong head wind compelled me to consume almost double the time that is usually taken to cross the lake.

At Moran Bay, near the foot of the mountain, I pulled up the boat on the shore, shouldered my pack, and made my way through a confused mass of dead timber and a fringe of living forest above it to a more open area beyond. This was an irregular, broken terrain, composed of glacial débris, that rose rapidly toward the mountain, and was clothed with a heterogeneous assortment of aspens, firs, and willows, together with a rather dense undergrowth of shrubs and herbs. Here and there were seen lairs of wild animals—probably those of moose. Occasionally I stopped in order to feast on the delicious blue-

berries that grew in abundance. Numerous silt-laden streams meandered through the medley of glacier-strewn rocks. As the elevation increased the undergrowth became less dense and the beautiful spire-like forms of spruce and fir decreased in size until they were only a few feet in height.

Desiring to camp a short distance below the glacier, I pressed on rapidly. Two streams appeared to issue from it, and between them there was a projecting point covered with dwarf conifers and other low growth. Upon approaching the glacier I noted that a small brook flowed down it, and thinking I might be able to find a camping-place with a good outlook I scrambled upward through hanging masses of willows and luxuriantly growing herbs and in many places over rocks slippery with wet moss. Eventually I reached the source of the brook, which proved to be a spring that came welling out from the loose glacier-laid formation. There I resolved to camp, but the declivity was so great that there was some difficulty in selecting a suitable location. Eventually, I dug out a place for sleeping purposes beneath an alpine pine and selected another for fire and commissary. When operations began there was some difficulty in retrieving the utensils that occasionally went bounding down the mountain-side. However, the compensations of the site were great. Near by were several miniature meadows in which abounded exquisitely tinted lupines, castilleias, and columbines. Far below was the azure expanse of Jackson Lake, and on the southeastern horizon, beyond a diversified area of verdant mountain and plain, loomed the lofty snow-clad range of the Wind River Mountains. Several hundred feet above camp was the glacier, and above that towered the dark, rugged summit of Mount Moran.

Early the following morning I was on my way toward my objective. The lower portion of the glacier, aside from being rather slippery, presented no obstacles. Soon, however, the grade steepened. A rocky island protruded from the middle of the glacier. To the right of this a number of yawning crevasses spanned the entire space between it and the mountain-wall that bordered the glacier in that direction. To the left only one crevasse was visible, and that had a bridge adjoining the island. Advancing to this bridge, I struck it a lusty blow with the pick, and as it appeared firm, I walked across it. The pitch of the ascent was already so great that progress was possible only by the constant use of the pick. When the base of the

chute was reached the slope became even steeper, but by kicking my toes several inches into the hard snow, and by driving the pick deeply into the snow every two or three steps, I was able to advance. Soon the main glacier was far below. Here to lose one's footing meant a lightning glissade of many hundred feet. However, with ordinary care, such a disaster may be avoided and, although the grade became almost perilously steep, I finally reached the crest, turned to the left, and scrambled up over the rocks to the summit, 12,100 feet in altitude.

The panorama that I beheld was gloriously beautiful and sublime. To the south, across great chasms, towered the Grand Teton and other almost equally imposing granite spires. Along the axis of the range were gorges, cliffs, and glacier-hung peaks that for ruggedness are probably not surpassed on the continent. East and west there stretched far into the distance the broken mountains and the green undulating plains of Wyoming. On the eastern horizon rose the lofty, massive snow-clad peaks of the Wind River Range.

The day was a beautiful one. The sky was cloudless, the sunshine warm, and scarcely a breeze blew across the rocky summit. After loitering some time at the cairn, in which eight or nine names of previous climbers were inscribed, I proceeded to go around the top of the mountain. It is composed for the most part of quartzite, with a small quantity of schist occurring here and there. A broad vertical dike of diabase cuts entirely through the peak. While I was observing these characteristics, walking along leisurely, I came suddenly upon a marmot. How the creature was able to secure sufficient food for subsistence from the scanty vegetation that exists at an altitude of more than 12,000 feet above sea-level at this latitude was a problem. After enjoying ever-changing views and vistas from the brink of the beetling precipices that drop down from the summit I returned to the cairn, but soon left it and, descending to the saddle, followed the knife-edge to the south peak. This I found to be similar in general to the other, except that it contains a considerable amount of disintegrated material lacking on the higher peak. It affords several superb views to the south along each side of the axis of the range.

Of the two routes available for the descent, I again chose the snow-chute. It was necessary to start down early, because as soon as the snow began to freeze under the afternoon shadows the descent would become extremely hazardous, if not impossible. For a few hundred

feet I made my way down over the rocks and then availed myself of the chute. The descent was more tedious than the ascent. It was necessary to use the pick to insure safety, and as I was unable to manipulate it while facing out, I was obliged to descend perhaps fifteen hundred feet facing in, as if going down a ladder. Thus, slowly but safely, I reached the glacier and thence to the rock island. There I had some difficulty in getting to the snow again, but when this was accomplished I quickly traversed the glacier and the short distance that intervened between it and camp.

II. GRANITE PEAK, MONTANA

As one stands on the summit of Electric Peak one is impressed by the diversity of the mountain scenery that surrounds the Yellowstone National Park. Near by, to the west and southwest, are the beautifully formed peaks of the Gallatin Range; to the east and southeast are the rugged Absarokas; to the south the lofty spires of the Tetons project above intervening elevations; and to the northeast the Beartooth Mountains loom up on the horizon. Although comparatively little known, the Beartooth Range is distinguished by some magnificently rugged scenery and includes the highest mountain in Montana, Granite Peak, approximately 12,850 feet above sea-level.

To learn something of this region, I went to Cooke City early in August, 1926, and thence to the vicinity of Grasshopper Glacier. During the following two weeks, in spite of inclement weather, I made a number of interesting climbs, including the first ascent of Silvertop Mountain, a peak that in many ways resembles Mount Darwin of the Sierra Nevada. I also climbed two sharp pinnacles similar to the Palisades, but considerably smaller in scale. Although I had come to the range chiefly for the purpose of scaling Granite Peak, I had been unable to secure any reliable information about it; in fact, I had not even succeeded in obtaining a map. After being treated to a varied and prolonged program of rain, snow, and hail, I was on the point of going in search of a more congenial climate, when happily the weather cleared. By good fortune just then some hikers from Billings came along on their way to Granite Peak, and I gladly accepted their invitation to accompany them.

It was on a clear, bright morning that our party of five men wound up the trail to Grasshopper Glacier, which we reached within an hour. As we traversed the glacier our attention was attracted by a



SUMMIT OF MOUNT MORAN, GRAND TETON IN THE DISTANCE

Photograph by Norman Clyde



THE HIGHEST MOUNTAIN IN MONTANA—GRANITE PEAK FROM SILVERTOP
Photograph by Norman Clyde

dark substance with which it was overspread. This proved to be the remains of grasshoppers, literally millions of them. Although most of these remains were broken into fragments or were completely pulverized, yet by looking about carefully we secured some specimens that were intact. I was informed that this interesting phenomenon is encountered not only in this glacier, but in at least a score of others within the range. Another extremely interesting object was a large *moulin*, or circular hole, in the glacier, caused by a stream that plunged into a narrow crevasse. This *moulin* was probably twenty feet in diameter and of unknown depth. Its walls were exquisitely fluted, and were adorned with great icicles. The surrounding scenery was ruggedly sublime. Within plain view were numbers of peaks 12,000 feet and more in altitude, while to the northeast the elevated mountain mass broke away in profound cañons which seemed to accentuate the magnitude of the mountains that towered many thousand feet above them.

Leaving the glacier behind, we climbed a nearby mountain, and, after working our way down from it, struck out through a rough, trailless region toward Granite Peak, some eight or ten miles distant in an air-line. It was a sort of no man's land, above timber-line (here about 10,000 feet above sea-level)—a monotonous expanse of broken granite hills, occasionally relieved by an azure rock-bound lake. A scattering growth of herbs and flowers, already tinged with yellow and crimson by the late summer frosts, and now and then a dwarf conifer or miniature willow, were the vegetation. The region seemed almost devoid of animal life; here and there we saw footprints of mountain-sheep, but encountered none of the animals.

After a few hours of toilsome progress the party separated, a young Swiss and the writer going ahead. We picked our way over rough rocky benches to a pass, and thence down into the next cañon, from which Granite Peak was in plain view toward the north, not more than two miles distant. By ascending the cañon for some distance, and crossing a small glacier, we came to the crest of a ridge immediately south of the peak. A long tongue of snow extended down a gorge that opened toward the east. There, about a mile farther, was a lake at which we hoped to camp. As it was already growing late, we hastened down the snow. All went well until the glacier became too steep for safety. Forced to find our way down the rocks on one side or the other, we chose the left, but soon found that

the rocks ahead broke away in a sheer cliff of glaciated granite. The sun had already set and the steep glacier was now frozen, making it dangerous to recross it without an ice-axe. Hoping that a chimney of some sort might be found farther to the left, I veered in that direction and eventually discovered a crack with enough holds to render it safe for descent. Scrambling down about twenty-five feet, I waited until my companion arrived. He let down the packs by a rope and then followed. By several relays of this sort we reached the base of the cliff in safety. Hastening on over rough talus, we came to a secluded mountain tarn near which grew several matted clumps of alpine fir—the only wood within a radius of several miles. Here we were fortunate in finding a camp-site, for it was already dusk.

The scene was almost indescribably wild and sequestered. Into the turquoise depths of a circular lake a few hundred yards in diameter dropped two glaciers that from a point opposite appeared to be almost vertical. Every now and then masses of morainal débris breaking loose above ricocheted down the icy slope of one of them and plunged into the lake. It has been appropriately called Avalanche Lake. Dark, rugged mountains almost surrounded the secluded basin. A rough talus-strewn cañon fell away rapidly to the east. Encircled by such obstacles, few have ever set foot in this remote and isolated cirque or have beheld its beautiful tarn, its glaciers suspended from precipitous slopes, and its rough-hewn wall of mountains.

As the remainder of the party did not arrive during the evening or on the following morning, we decided to make the climb alone, rather than run the risk of a change in the weather. Although a number of attempts to scale the peak had been made heretofore, only one had succeeded. No doubt this was partly due to the inaccessibility of the mountain, yet we had reason to believe that it would prove a really difficult ascent. Lacking any specific description of the route followed by those who had already scaled it, we were obliged to find our own way. The first fifteen hundred feet or more proved to be a succession of benches, followed by a scree-slope that entailed no special difficulty. We then encountered a knife-edge, up which we advanced in a westerly direction. Suddenly the main peak came into view, from this angle a great jagged granite pinnacle that apparently presented no avenue of approach. A series of smaller pinnacles intervened between us and the main peak.

As it was obviously impossible to follow the crest, it was necessary to find a route along one side or the other. After surveying the problem carefully, we decided that the northern side appeared the more promising. Crossing a small saddle, we proceeded for some distance along the upper margin of a precipitous glacier that hangs on that flank of the mountain, and then crossed a steeply shelving rock. The way now seemed to be barred, so I endeavored to reach the crest by climbing a short chimney. Thwarted in this attempt by a lack of holds, and by overhanging rocks, I returned and tried another depression that led upward to a notch. By dislodging masses of loose rock that went hurtling far down upon the glacier, I succeeded in digging out enough holds to enable me to reach the crest. Assisting my companion up the treacherous wall by means of the rope, I led the way along a ridge to a point from which we had an unobstructed view of the main peak.

Here we paused to scan the route. Apparently the chief obstacles to be encountered were due to the great size of the granite blocks and to the distance between their joint-planes. Careful scrutiny revealed a rough shelf running diagonally upward to a spot not far from the summit. Continuing our advance, we soon reached this spot. We now made steady progress; sometimes following a narrow shelf, sometimes pulling ourselves over great blocks, sometimes squirming up tortuous crevices. Although the cliffs dropped away almost sheer below us for hundreds of feet, we gave little thought to such perils, so intent were we upon reaching the summit.

At last we surmounted the final crevice, the final shelf, the final block, and stood upon the summit. It consists of a jagged arête a few feet in width and about a hundred yards in length, falling away sheer on either side. We found there a cairn from which projected an alpenstock with the remnants of an American flag placed there several years ago by members of the Forest Service, our sole predecessors upon the summit.

The day was perfect. A cloudless sky of exquisite blue overarched the grand and imposing panorama that extended in every direction. The Beartooth Range is of limited extent but of extreme ruggedness. In all it may possess a score of peaks of from 12,000 to 12,850 feet above sea-level. On the southeast there is a gradual rise, often extending to the very summits of the mountains, but on the northeast there are profound cañons. From Granite Peak the entire range is

within view. Its deep gorges, great cirques, numerous hanging glaciers, and massive peaks form an ensemble of great sublimity and beauty. Far beyond it in every direction, excepting here and there on the north and east, extend other picturesque and interesting mountains. To the southeast, across a basin heavily timbered on its lower elevations, rise the spectacular spirelike forms of Pilot and Index peaks; and beyond them, stretching far into Wyoming, are the rugged, broken masses of the Absarokas, green with forests on their lower altitudes, bare and snow-covered at the crest. To their right are the massive-walled peaks of the northeastern portion of Yellowstone National Park. In the distance, beyond the park, are the handsomely formed Gallatin Mountains, and farther to the right areas of undulating ranges fading away into the distant plains.

For more than an hour we remained on the summit absorbed in the contemplation of the varied and spectacular panorama until time forced us to consider retracing our steps. During the first few hundred feet of the descent we used the rope liberally, but after that we had no further difficulty in making our way to camp. While we were on the mountain the remainder of the party had arrived. They had spent a fireless night above timber-line in an adjoining valley and had come the rest of the way in the morning. We remained for another night amidst these wild and secluded surroundings. The moon shone bright on placid lake, gleaming glacier, and rugged mountains, transforming the weird scene as if by magic into one of ethereal beauty.



MOUNT SHERIDAN
Yellowstone National Park
Photograph by H. P. Rankin



DAN TACHET, SIERRA CLUB CHEF
At Upper Yellowstone River Camp
Photograph by Walter L. Huber

A QUARTER-CENTURY OF OUTINGS



THE first annual outing of the Sierra Club was held in Tuolumne Meadows, Yosemite National Park, in 1901. To take so large a number of people—over one hundred—into such a remote section of the mountains was decidedly an experiment. To be sure, there was the Tioga Road, but it was so badly out of repair that the supply wagons had a hard time reaching their destination. Nevertheless, to quote from the report of the secretary of the club, who was also the head of the Outing Committee, “In spite of predictions to the contrary, the outing was a complete success, and one of the most positive proofs of this was the fact that the majority of those in attendance on this trip were planning for next year’s outing almost before they had reached home. The objection raised by many before the outing started, that being with such a large party would be unpleasant, proved entirely without foundation. In fact, the association with so many genial spirits, and the valuable instruction obtained from the learned lights of the party, made it a pleasure and a memory never to be forgotten.”

Encouraged by this success, the Outing Committee attempted a more ambitious project for the summer of 1902, taking a much larger party into the Kings River Cañon. “Over two hundred people made the trip to the main camp, which was established for five weeks,” says the report of the committee. “Over one hundred of this number went up Bubbs Creek Cañon to the very crest of the High Sierra at Kearsarge Pass, and fifty of the hardiest mountainers climbed Mount Brewer.”

The second outing completely demonstrated the success of the plan, and these annual summer outings became a fixture in the program of the Sierra Club. They have continued with but one interruption ever since; in 1918 the outing was canceled because of the war. During this period a number of features were developed that have made the Sierra Club outings unique: the methods of feeding, of transport, and of camping, the sociability, and the opportunities for education in the natural history of the region. These were the product of the remarkable combination of factors found in the climatic conditions, the sudden jump from civilization to wilder-

ness, the personnel of the parties, and the special genius of the leader, William E. Colby.

Mr. Colby was the chairman of the Outing Committee that planned the first outing and was the leader of the party in the mountains. Without a single lapse, he has continued in this capacity ever since. Few, perhaps, realize the immense amount of work this has entailed. It would be hard to say which is the greater task: planning months ahead all the details of food, equipment, and transportation, or managing the execution of these plans in the heart of the mountains.

A bare list of the twenty-five outings can hardly convey an adequate idea of the gigantic task of conducting them, yet such a list may serve to emphasize the long-continued service that the leader has rendered. It may also serve as a pleasant reminder to those who have participated in the earlier outings.

LIST OF THE ANNUAL OUTINGS OF THE SIERRA CLUB

- 1st (1901). Yosemite Valley and Tuolumne Meadows.
- 2nd (1902). Kings River Cañon and Mount Brewer.
- 3rd (1903). Kern River region and Mount Whitney.
- 4th (1904). Yosemite National Park.
- 5th (1905). Mount Rainier, Mount Hood, and Mount Shasta.
- 6th (1906). Kings River region.
- 7th (1907). Yosemite National Park and Mount Ritter.
- 8th (1908). Kern River region and Mount Whitney.
- 9th (1909). Yosemite National Park and Mount Ritter.
- 10th (1910). Kings River region.
- 11th (1911). Yosemite National Park.
- 12th (1912). Kern River region and Cottonwood Lakes.
- 13th (1913). South and Middle forks of Kings River.
- 14th (1914). Yosemite National Park and Mount Ritter.
- 15th (1915). Yosemite National Park and Devils Postpile.
- 16th (1916). Kern Cañon, Junction Pass, Bubbs Creek and Kearsage Pass.
- 17th (1917). Yosemite National Park.
- 18th (1919). Yosemite National Park and Mount Ritter.
- 19th (1920). South Fork of the San Joaquin, Middle Fork of the Kings.
- 20th (1921). Yosemite National Park and Mount Ritter.
- 21st (1922). Kern Cañon, Junction Pass, Kings River Cañon, Giant Forest.
- 22nd (1923). Yosemite National Park.
- 23rd (1924). Glacier National Park, Montana.
- 24th (1925). Kings River Cañon, Middle Fork of the Kings and South Fork of the San Joaquin.
- 25th (1926). Yellowstone National Park, Wyoming.

In order to express their appreciation of this large and unbroken record of devoted service on the part of Mr. Colby, the members of the outing party of 1926 presented to him a silver bowl and tray engraved with the insignia of the Sierra Club. The presentation was made at the annual dinner of the club, held in San Francisco on December 11, 1926. The sense of gratitude and affectionate regard felt by all who have taken part in the outings were expressed in brief addresses by President Walter L. Huber, former President Robert M. Price, and Dr. George C. Thompson, and by the reading of the following verses.

LINES TO WILLIAM E. COLBY

ON COMPLETING HIS TWENTY-FIFTH OUTING WITH THE SIERRA CLUB

Let us remember five and twenty summers
In the holy places; in the High Sierra—
The trails we trod; the peaks we climbed together;
The granite slabs whereon we lay at noon-day
Viewing the dim world leagues and leagues below us;
Clouds; and the long barrages of the thunder;
Shadows upon the Red and Black Kaweahs;
And of all sights serene and pure and smiling,
Sunlit Sierran meadows after rain.

Let us remember five and twenty summers;
Trees where we slept and streams wherein we laved us;
Rough blankets and the chill before the dawning;
The flash of tin cups and the gay bandanas;
The great flag hanging at the commissary;
The pack-train in the dust at eventide;
Camp-fires that burn in memory forever;
The comradeship, the laughter and the singing.

Let us remember five and twenty summers;
Striving, but not toiling;
Tired, but never weary;
Possessing nothing, yet possessing all things;
For we had you for guide and friend and prophet;
You set our supper in the wilderness;
You brought us beds upon the snowy passes;

You made a thousand camp-fires burn in darkness;
It was your word made plain the morrow's journey.

What gold, what oil were found, what factories builded,
What cities rose those five and twenty summers!
The merchant-princes, they could have their traffic!
You had cañons, glaciers, and rivers,
Meadows and forests, vast, primeval, glorious.
These were your conquest, these your one ambition—
Not for yourself alone, and not for us,
But for all those who love them in every generation
To hold in simple fee from God forever—
This is the glory that you sought and strove for,
Hallowed with love and incorruptible;
This is your crown of five and twenty summers!

C. NELSON HACKETT

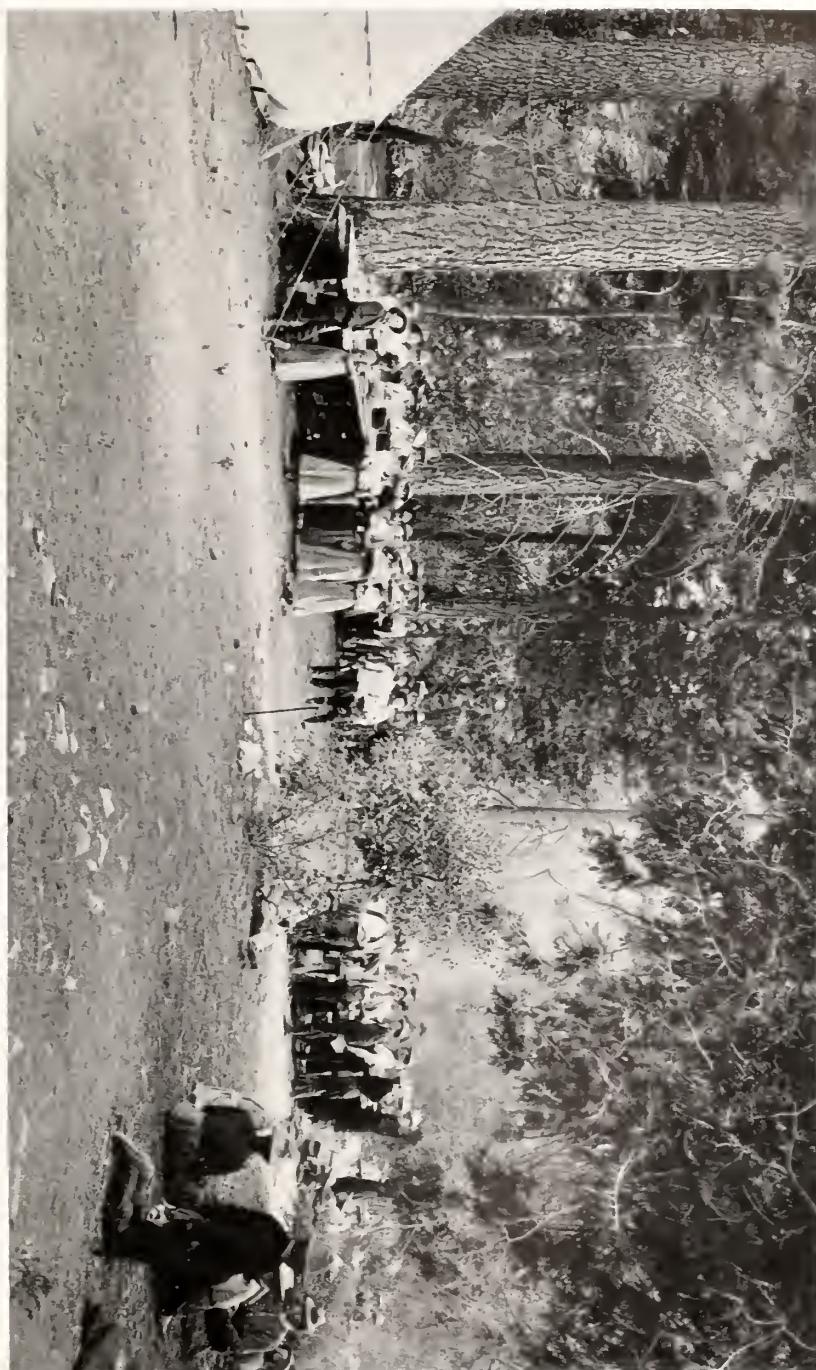
TO WILLIAM E. COLBY

IN APPRECIATION OF HIS TWENTY-FIVE YEARS AS LEADER
OF THE SIERRA CLUB HIGH TRIPS

To love courageous highlands, strewn defiles
In ageless shade, and white-blown cataracts
Writhing from granite cup to granite cup;
To love the cool pine holds, the flowering keeps
Of glen and stream; to love the dusk-red cliffs,
The serrate peaks that clamber up, up, up,
Night's brooding, and the wonderment of dawn:
These, Sir, are passions passing general,
And yours from ours but different by degree.

But you, Sir, are of stuff to which such love
Is but the warp, the groundwork of your cloth.
The weft, the cross-thread of your character
Is your abiding love for fellow man.
'Tis this stout passion and unbreakable,
However strained, that runs across the first
And in and out, until your fabric spreads
Full woven, and its pattern luminous.

NEILL C. WILSON



SIERRA CLUB CAMP IN KINGS RIVER CAÑON—1902

SIERRA CLUB BULLETIN, VOL. XII.

PLATE CXIX.



HAWKS REST FROM BRIDGER LAKE
Yellowstone National Park
Photograph by Walter L. Huber

APPALACHIANS IN THE SIERRA

By NATHANIEL L. GOODRICH



[During the month of August, 1926, about thirty members of the Appalachian Mountain Club joined with an equal number of Sierra Club members in an outing of three weeks in the High Sierra. The party entered the mountains from Bishop, by way of Piute Pass, camped on Evolution Creek, crossed Muir Pass to the Middle Fork of Kings River, and, after a camp at the junction of Palisade Creek, returned to Bishop over Bishop Pass. Believing that Sierra Club members would be particularly interested in hearing from an Appalachian his impressions of a first experience in the Sierra Nevada, the editor wrote to a friend and companion of former years who was on this outing and requested such an expression. The response exemplifies in a most delightful manner the common bond that unites us all, East and West, North and South, into one great society finding inspiration in mountain and stream, forest and meadow, and in the life of nature.—EDITOR.]

DEAR FRANCIS: Your request that I write for the BULLETIN some account of last summer's excursion to the High Sierra by a joint party from the Sierra and Appalachian Mountain clubs is one I can hardly decline, if only on account of our days together long ago.* In those days of climbing and hiking under pack, and nights of camping, in the New Hampshire hills, we were beginning that love of mountains which has so grown with the passing years. It was indeed unfortunate that you could not be with the party, and yourself show me the mountains you have made so much your own.

I do not feel that one brief trip has qualified me to attempt any description of the Sierra—even that small part we saw. Nor would it interest your members, to most of whom it is so familiar. So I am simply writing a few of the impressions of one from the East, and writing in the informal way of a letter, which seems, somehow, most suitable. In a letter one may use the first person with less offense.

You have a most unusual committee of management. We admired their efficiency, but, more important, we liked them personally. We never experienced a better-handled trip. As to the Commissariat, it is without doubt a championship team, and "Dan" an All-Ameri-

* The editor accompanied Mr. Goodrich and his brother on a camping trip to Mount Washington in 1905.

can star. We know that any trip under that management is sure of success.

Of course, your ways are not quite our ways. For instance, you organize entertainment and let hiking take care of itself. We do exactly the reverse. Local conditions give complete explanation. In our heavily forested country, where views are rare, one can get lost, with annoying results to all concerned. So we organize all long hikes, and our "getting together" takes place informally during the days. The evenings we leave to individual initiative. In the High Sierra it is hard to get lost, so you can give to all the delightful freedom of going as they please, but feel that you must, to give the crowd a feeling of unity, keep everybody together during the evening. We loved the freedom to hike as we chose, and enjoyed the camp-fires. If we mentally balked at being compelled to entertain and be entertained, so would you at being required to take most of your hikes under direction.

Some of those camp-fire evenings are precious memories. But to get their utmost savor, I at least had to leave the circle. So I stood back in the shadows while the notes of Wright's violin mingled with the moonlight and the firelight in the vast granite waste of Dusy Basin. So, at Palisade, I many times left the fire and wandered in that incredible *coup de théâtre*, compounded of full moon, granite ledges pale as snow, firs like black spires, half-seen dim peaks and mysterious cañons, rushing water, and the distant camp-fire glow which gave the essential human touch.

If you would have in a word my impression of the High Sierra in a snowless August, it is this—*desert*. Essentially they are desert mountains. From the peaks vegetation is hardly seen—the eye ranges a dismaying waste of granite, gray-yellow, crumbling, unrelieved. The vegetation itself has hints of the desert, and the smell of sage is in the air. Over all floods the unchanging, tormenting brilliance of desert light, hot in the sun, chill in the shade. I have most persistent and charming memories of streams and lakelets, mountain meadows, grass, flowers, trees. But in that vast shattered upheaval of pale granite they are but hidden threads, lovely scattered oases; rare, and so doubly sweet.*

* This impression would no doubt have been somewhat different under other circumstances than those that prevailed in August, 1926. There has been a deficiency in the normal snowfall in the Sierra for several successive winters, with the result that by mid-summer the snow-fields that we have been accustomed to see have been almost entirely lacking. Those who are familiar with the Sierra in years of heavier snowfall have ob-

We found a strange fascination in the high basins and their little lakes. Tarns they are, really, so like in setting to those of the Westmoreland fells that at times I could hardly realize I was not again passing Sty Head Tarn on the path to Wastdale. All seemed the same—great sweeps of rock and scree, grass and stunted shrubs, little pools, and the peaks around seeming to rise no higher above, for all their 13,000 feet, than Great Gable above Sty Head. But the translucent incredible color of the water—the cloudless brilliance—the dryness—these are wholly of the Sierra. The brilliant light plays deceptive tricks. The rock-ribs and hillocks are lost against each other. Hollows and shelves holding deep tarns appear suddenly at one's feet, where their presence had seemed impossible. Distance is foreshortened, and the altitude shortens the breath, and progress is slowed incredibly, as in a dream. Indeed, they are dream country, these basins, high, remote, still, like lost lands out of Malory or William Morris: . . . “then came they into a waste land of rocks, with pools of water set therein, among the hollows, and great mountains roundabout. And a spell lay upon that land, so that they might not win to the end of it, nor cast off their weariness. Nor knew they what manner of thing lurked amid the stones. . . . ”

The mountains we greatly admired. To be sure, they lack the spectacular appeal of the Canadian Rockies, which are seen from lower elevations, and carry both forest and eternal snow. But they are tremendous. And one can climb them without a guide, yet feel that he has done something rather worth while after all. It is a keen delight to pick one's own route and solve minor problems of rock-climbing free from the incubus of peril. Hermit was great fun. Darwin was not as bad as we had heard—a tremendous grind on scree, with two short bits which were interesting, but not too much so. “Peak 13223,” north of Muir Pass, was a tame climb, but it is a noble peak from all southern view-points, and deserves a name. As it belongs to the Evolution Group, why not “Mendel”? Some had an eventful day—and night—on Goddard. Two made Emerald—like 13223, a second ascent. A few of us climbed Langille—and are still wondering if it was a first ascent, which seems a bit unlikely.* Descending, for variety, by the south face, we encountered a vast gla-

served the present appearance of barrenness. Mr. Goodrich's impression was doubtless accentuated because of entering the mountains from the eastern side instead of through the great pine forests of the western slope.—EDITOR.

* Not at all unlikely.—EDITOR.

ciated granite apron, with an angle of slope, a polished smoothness, and a scarcity of cracks which scared some of us more than we care to recall. We made a fruitless reconnaissance of Devils Crags; got lost in the horrible black gullies of incredibly loose rock above Rambaud basin, and arrived at No. 1 too tired and too late. There was not time for another try. That is a dangerous mountain. Four made Mount Palisade and reported it a grand climb, not too dangerous, except when they got off the route.

It is a friendly country. One can wander in it at will, nor worry about getting lost or getting wet. And it is perfect for camping. In New England, as you remember, we have to contend with frequent rain and wet firewood and dense forest and insects. The High Sierra has none of these.* The Canadian Rockies add to the list almost unfordable streams, and, on the mountains, falling stones and unavoidable snow-slopes and glaciers. You have a wonderful playground.

I must omit so many things. We came in by the desert, you will recall. We were immensely interested, and loved the informal little train—hung our feet off the steps and invaded the baggage-car. Bishop charmed us, with its surprising inn, and its Lombardy poplars framing mountain glimpses. Your trails are too dusty or rocky—we can beat you there. But your fishing—it is little short of incredible to one from the East. At Colby Meadow I lay on the bank in front of my tent reading, dozing, idly watching trout in the great brown pool at my side. And then I picked up my rod and caught a few—and there were as many as before in the pool.

We felt the altitude. Darwin from Colby Meadow is 4000 feet of climb in three miles horizontally. Our Mount Washington from the Glen is 4600 feet of climb in three and a half miles. But the effects of altitude, sun, and loose footing make Darwin much the stiffer job. We felt the altitude at camp. I never saw such a lazy lot. At Dusy almost anything was a noticeable effort. But we loved those lazy days. I recall, at Dusy, a group about a fallen tree: on one side, Boston shooting craps with San Francisco; on the other, San Francisco reading “The Hobo Hits the Y” to Boston; while the cool breeze stirred the pines and the purple shadows deepened on the Black Divide.

Little tents among the pines—fairy tent-fires in the deepening

* We reluctantly admit that the Sierra occasionally has.—EDITOR.

dusk—dim peaks catching the moon—singing from the camp-fire. It was a memorable trip—with delightful people. I wish you could have shared it.

Sincerely,

NATHANIEL L. GOODRICH

Dartmouth College, Hanover, New Hampshire,
November 22, 1926.

THE ATTRACTIONS AND REWARDS OF TRAIL-MAKING



OTHER trails, other scenes. What will recall to each of you his best days on the trail? Camps by the pulsing, insistent rushing of a brook; nights in the open, with moonlight in the firs; drumming rain on the tent; noon halts by a spring; monotonous hours of blazing, chopping, sawing; the smells that work so strongly in our memories—wood smoke, balsam, fly-dope, wet clothes drying. Each to his own woods. If mine are the low firs of the high levels, yours may be the great hardwoods, the old-growth spruce, the second-growth country of old logging-roads, the oak scrub of the Massachusetts hills, with rustling leaves under foot and a riot of autumn color.

NATHANIEL L. GOODRICH

In *Appalachia*, June, 1918

THE FIRST ASCENT OF MOUNT RUSSELL

BY NORMAN CLYDE



FOR several days in the latter part of June, 1926, I was encamped in a grove of foxtail pines on a branch of Wallace Creek, formerly known as East Fork of Kern River. The location was a delightful one, commanding a fine outlook across the broad basin of the Kern to the lofty and picturesque Kaweahs, to the rugged array of peaks that form the Great Western Divide, and to a portion of the Kings-Kern Divide. The days were remarkably beautiful. The sky was usually clear in the morning, but each afternoon great masses of soft, fluffy cumulus clouds would gather about the western peaks. Presently they would float lazily across the blue sky to the peaks along the main crest of the Sierra, where they appeared to linger for a while before drifting eastward to vanish in the dry atmosphere above Owens Valley.

On the morning of the 24th of June I set out to climb Mount Russell (14,190 feet). Turning eastward, I gradually ascended the stream and passed through the upper glaciated basins until I reached Tulainyo Lake, at an altitude of 12,865 feet above sea-level. This is unique in its location upon the very crest of the range, with no apparent outlet. It is almost circular in form, about half a mile in diameter, and possesses an air of remoteness and isolation not often encountered. Seldom has human foot trodden its almost vegetationless shores from which rise abruptly several granite peaks, the highest of which is Mount Russell.

I had given some consideration to the best method of approaching this mountain. During the previous autumn, from a nearby peak, I had noted a narrow ridge, or knife-edge, leading upward toward the summit. Although it was too deeply gashed to permit one to follow its crest, there appeared to be a shelf on the northern side that might perhaps be used to a point not far below the summit. It was with the purpose of reaching this knife-edge that I was making a half-circuit to the east of the peak.

After luncheon I continued southward over patches of deep snow and across a stretch of rough talus to the base of a ridge which,

being only about five hundred feet in height, was soon surmounted. The route ahead looked formidable—at times impossible. To the south the wall dropped abruptly; to the north, after descending at a steep angle for a few feet, it fell away sheer. Difficult as it seemed from a distance, nevertheless the way opened up as I progressed. There was always a safe passage and there were always enough protuberances and crevices to afford secure handholds and footholds. Now and then I came to a gash in the ridge through which I looked with a thrill down vertical cliffs, hundreds of feet in height, to the basin below, and beyond to the flanks of Mount Whitney.

After reaching the end of a ledge, a short scramble brought me to the eastern summit of the mountain. Thence a knife-edge extends a few hundred yards to the western peak, which is apparently the higher. The whole summit, in fact, is nothing more than a knife-edge with a high point at either end. Picking my way along the crest or along shelves a short distance below it, I advanced toward the western eminence, which I reached by hoisting myself over some large granite blocks. There was no cairn or other evidence of a previous ascent.

It was just such an eyrie as delights the heart of the mountaineer. Only a few feet in diameter, the summit drops away vertically to the south and west and at a very steep angle to the north. The view was superb. To the south across a narrow cirque rose the precipitous eastern front and northern flank of Mount Whitney, seen from this point in its most imposing aspect. Beyond, to the southeast, was an array of craggy mountains, and westward across the wide basin of the Kern were the stately and imposing Kaweahs and the ragged line of peaks on the Great Western Divide. To the north the eye followed the crest of the Sierra as far as the Palisades, with Goddard, Darwin, and Humphreys looming hazy in the distance.

As I sat on the rocky summit in the warm sunshine, the radiant white clouds that lazily passed overhead gradually became denser and assumed a darker hue. Clouds were gathering in threatening masses around the Kaweahs and the Great Western Divide and seemed to be moving in mass upon a peak to the west of Mount Russell. Mindful of previous unpleasant encounters with electric storms on mountain-tops, I considered it time to seek lower elevations. Returning to the eastern summit I paused, debating whether I should follow the route used in the ascent or attempt a descent down an arête

to the north. I decided upon the latter course, although it might entail a return to the summit. There was still a good deal of snow on the north face; to avoid it and to avoid the shelving glaciated slopes that cover a good portion of that side of the mountain, I followed the crest of the knife-edge or made my way along shelves immediately to the west of it. In the meantime the storm passed harmlessly by, with only a momentary gust of snow.

On the whole, less difficulty was encountered in the descent than I had anticipated. The joint-planes of the rock were rather far apart, and it was sometimes necessary to make a rather long drop in getting down from some huge block. Eventually, a rather formidable wall appeared to bar farther progress. On one side was a vertical cliff, on the other a steeply shelving slope; but by an assortment of gymnastic maneuvers familiar to every rock-climber I was able to let myself down in safety to the base of this obstacle. Thence I sped down a snow-slope, hurried onward along a stream, past a lake, and safely reached my camp in the grove of foxtail pines near the base of Mount Barnard.



MOUNT RUSSELL FROM THE NORTH

Photograph by Walter L. Huber



WESTERN PEAK OF MOUNT RUSSELL

Photograph by Norman Clyde



A YOKUT INDIAN WOMAN AND GRANDCHILD
With samples of Yokut basketry

THE YOKUT INDIANS OF THE KAWeah REGION

BY GEORGE W. STEWART



BY whom or when the southern portion of the great central basin of California was first inhabited is a mystery, but certain it is that the Indians found here by white men more than one hundred and fifty years ago were not the first people to occupy this territory.

High on the western flank of the Sierra Nevada, in and near the forests of *Sequoia gigantea*, are numerous large basins made in the solid granite, many of them five feet in diameter and two feet deep, others shallower, and some much larger and deeper, the purpose of which is unknown today. The number and size of these excavations in the hard rock, usually in groups, indicate the existence of a considerable former population and a protracted occupation.

At a lower altitude, where prominent rocky points, favorably situated for defense, jut into the level San Joaquin Valley near running streams or natural springs, populous communities once existed. This is evidenced by the numerous mortar-holes (some of a peculiar shape), by occasional characters carved in faces of solid granite, and by numerous hieroglyphics painted in enduring red, white, yellow, and black. These hieroglyphics are similar in type to the pictographic carvings and paintings found elsewhere in southeastern California, in Nevada, Utah, and Arizona, and in Sonora, Mexico, a territory many times greater than that occupied by the local tribes. Neither the incised nor painted inscriptions are understood by living members of the tribes now occupying this region, nor have they any authentic information concerning them.

In the hills of the Coast Range immediately west of the valley are large excavations in the sandstone formation which it is believed were not made by the same people as the recent Indian occupants.

In the broad level valley are to be found mounds of considerable size used sometimes as the burying-place of a prominent personage and at other times for the interment of numbers of people. In some of these sepultures there have been found stone implements and ornaments similar to those recently in use by local Indians, and others, finely-wrought, the purpose of which is unknown to them. From one

burying-place were recently taken a number of beads skillfully made of garnet, turquoise, and other precious or semi-precious stones, probably of Mexican-Indian origin.

Many stone implements have been plowed or dug up from below the surface of the ground in the valley and in and near the base hills of the Sierra Nevada as well as of the Coast Range. Several of these not in use by the Indians of the present day are believed by them to be of supernatural origin, and some of them lead to the belief that there was once known here a form of worship which has obtained amongst ancient peoples of all the continents.

The remnants of the several Indian tribes recently occupying this territory, classified as Yokuts, insist that they were the real aborigines and believe that no other people were here before them. They were spread over the whole southern San Joaquin Valley and adjacent mountains, extending from the small stream known as Fresno River, in Madera County, southward to the vicinity of Tehachapi and Fort Tejon, in the spur connecting the Sierra Nevada with the Coast Range at the extreme southern end of the great interior basin, a distance of about one hundred and fifty miles; and from the summit of the Great Western Divide, in the Sierra Nevada, westward to the summit of the inner Coast Range, about one hundred miles. The total area covered by them was therefore about 15,000 square miles.

The elevation of the San Joaquin Valley in this region is from about 200 to 300 feet above sea-level. The summit of the mountains on the west side is about 3000 feet above the sea, while on the east side the summit peaks of the Great Western Divide have an altitude of about 12,000 feet; and immediately to the east is Mount Whitney, the highest point in the Sierra Nevada as well as in the United States.

The valley here is about forty-five miles wide and very level, the lowest part being on the west side. The distance from the eastern side of this prairie to the summit of the Great Western Divide, in a direct line, is about thirty-five miles, and from the western side to the Coast Range summit is about twenty miles, while one must travel at least twice the distance given, by road and trail, to reach either summit.

From the Sierra Nevada there are discharged into the Yokut territory, from the Fresno River southward, the San Joaquin, Kings, Kaweah, and Tule rivers, Deep Creek, White River, Poso Creek,

and Kern River. A number of small streams pour their waters into the valley from the southern end and west side during the rainy season only.

Several of the streams from the Sierra Nevada, after reaching the plain, spread out in places into large swampy areas where vegetation was once rank and woods were dense. Much of the east side of the plain was timbered with oak, cottonwood, willow, and other trees. The foothills were well covered with oak up to an altitude of about 4500 feet, and above that zone with forests of pine, cedar, fir, and sequoia. There was less timber in the mountains at the southern end of the valley, and very little on the inner or eastern slope of the Coast Range, and none in the western part of the valley.

In the Sierra Nevada are many small lakes; at the southern end of the great plain there were formerly two, Kern and Buena Vista; and a few miles to the northwest was Tulare Lake, a large body of shallow water which with the marginal tule swamps had an area of about 1500 square miles.

The Yokuts who occupied this territory existed in a terrestrial "happy hunting-ground," for here in the valley were great numbers of elk (sometimes a thousand in a herd), numerous bands of antelope, innumerable hares, ground-squirrels, and cottontail rabbits, while deer, plentiful in the mountains and foothills, were not uncommon in the wooded portion of the valley. Game-birds such as quail, doves, and larks were plentiful at all times, and pigeons in the fall and winter months. Water-fowl were always here in great numbers, and when the swans, brant, geese, ducks of several species, sandhill cranes, curlews, and plover came from the north to winter, they were present in myriads.

The lakes, and the streams feeding them, teemed with fish; and the land was equally bountiful in supplying food. Acorns, a staple article of diet, were abundant, and plants of various kinds were harvested in quantity in season.

According to Yokut myths, Tulare Lake, once occupying a large area in the southern part of the San Joaquin Valley, was the first part of the world created. The great valley and surrounding mountain ranges were constructed of mud brought from the bottom of the lake by diving-birds, and the members of different subtribes indicate certain conspicuous landmarks where the first pair of their own people were created by the eagle, *Tsohit*, and the wolf, *Iweyit*. Their

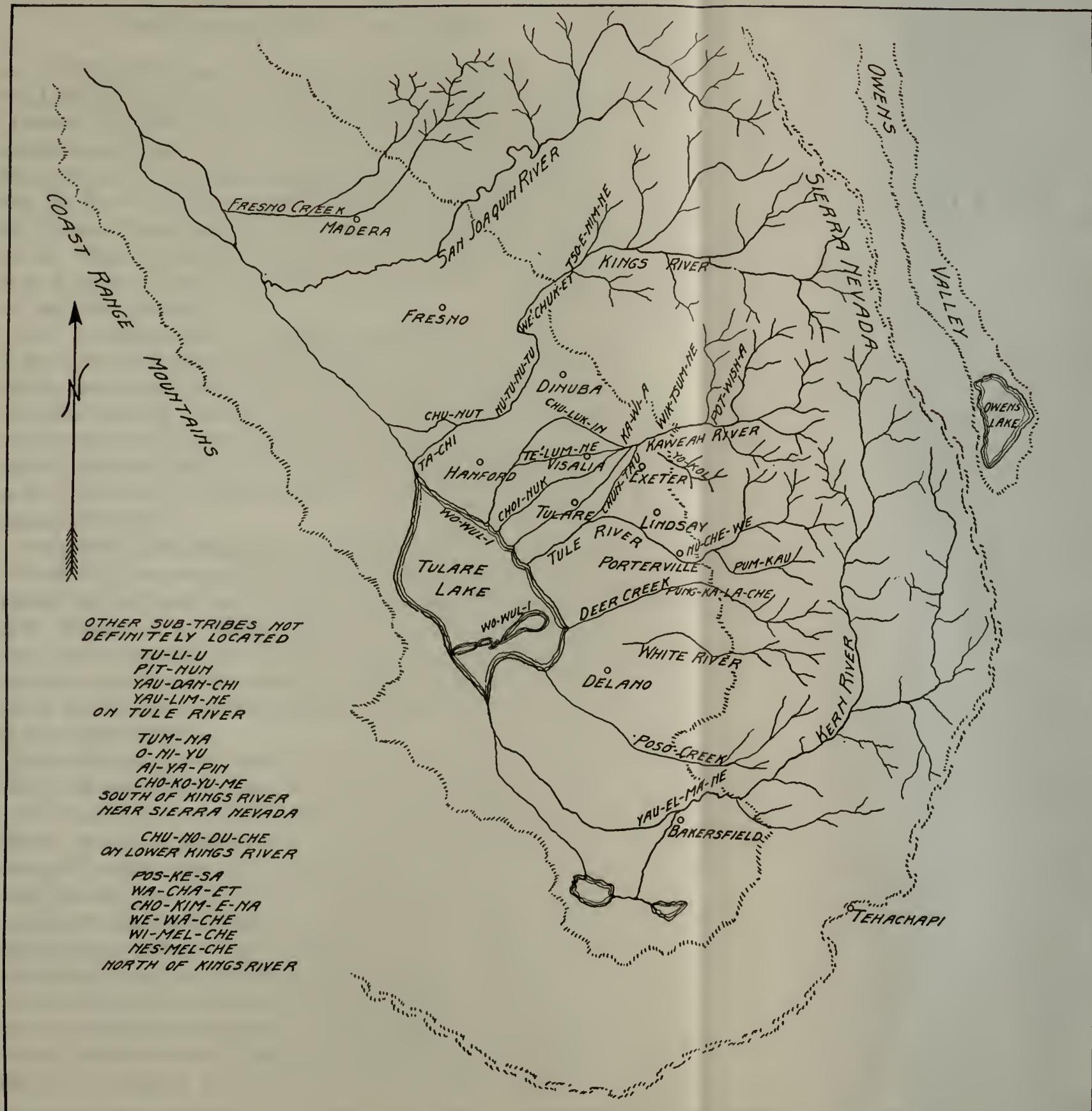
legends relate to events stated to have taken place in this part of the world, and the writer has heard none from any local Indian in which reference is made to more remote regions.

There can be no doubt that the Yokuts have lived here many generations—so long that they have no known traditions of prior occupants or earlier homes. Who they are or whence they came is unknown; but there is evidence to lead one to the belief that they are in part of Mongolian extraction.

Of their religion little is known. They had four principal gods: *Tso-hit*, the eagle; *Wu-hus-set*, the panther, or California lion; *I-wey-it*, the wolf, or mountain coyote; and *Kai-yu*, the coyote of the foothills and plains. The benign Tsohit, the creator of all things, was greatly revered by them. Iweyit was Tsohit's loyal and ever-dependable assistant. Kaiyu, a mischievous cut-up, was a spoiled and favorite younger brother. Wuhusset does not seem to figure prominently in their legendary lore. They believed in the existence of the spirit after death, and appear to have believed in the transmigration of souls.

Geese, ducks, and various kinds of swimming-birds were made before the existence of land was known, and after the building of the world birds and animals of all kinds were created, and Tsohit and his associates were well pleased with their work. Later they created human beings, who congregated in greatest number near a great sweathouse, known as *Wah-pah-lit*, in the mountains rising above the southern end of the valley. After a time they became so numerous they were threatened with starvation, and were reduced to the extremity of eating dirt, and appealed to Tsohit for relief.

He found it necessary to distribute them over the world, and took them on a great pilgrimage from Wahpahlit, and when they reached the foot of the mountains, near where Bakersfield is now situated, he left a number of people at Kern River and gave their tribe the name of *Yau-el-ma-ne*. Traveling northward the nucleus of another tribe was left at Poso Creek. The contingent left at Deer Creek was called the *Pung-ka-la-che*. At various points along the several branches of Tule River were left the *Yau-lim-ne*, *Pum-kau*, *Pit-nun*, *Nu-che-we*, *Tu-li-u*, and *Yau-dan-chi* subtribes. The *Yo-kohls* were left on the creek now bearing their name, the *Chun-tau* on Outside Creek, and high up along the Kaweah River the *Pot-wisha*, and below them, in order, the *Wik-tsum-ne*, *Ka-wi-a*, and *Té-lum-*



LOCATION OF THE YOKUT INDIAN TRIBES OF THE TULARE VALLEY AND THE ADJACENT SIERRA NEVADA
Map drawn by T. W. Switzer, under direction of George W. Stewart, November, 1926



Fig. 1. The reconstruction of a medieval town in the 13th century.

ne. At Elbow Creek the *Chu-luk-in* were left. Westward near Tulare Lake, in the vicinity of the Buzzard Roost, were placed the *Choi-nuk*. On islands in the southern end of the lake and along the eastern shore to the vicinity of Cross Creek Tsohit left the *Wo-wul-i*, and near the mouth of Kings River, at the north end of the lake, the *Ta-chi*, and, proceeding up-stream, placed in their order the *Chu-nut*, *Nu-tu-nu-tu*, *Cho-ko-yu-me*, *Wé-chuk-et*, and *Tso-e-nim-ne*. North of Kings River places were set aside for the *Poske-sa*, *Wa-cha-et*, *Cho-kim-e-na*, *We-wa-che*, *Wi-mel-che*, *Nes-mel-che*, and other subtribes.

After the dispersion of the starving multitude from Wahpahlit, Tsohit and his associates observed that they acquired knowledge rapidly, became much superior to all other animals, many of which they killed for food. Fearing that they would also be the victims of these people whom they had created, after seriously considering the matter, Tsohit sent Wuhusset, the panther, to the mountains; Iweyit, the wolf, to the hills; Kaiyu, the coyote, to the plains; and then flew upward into the sky.

It is believed, from the several names of former tribes which have survived after the passing of the people to whom they were once applied, that the domain of the Yokuts once extended farther to the north. Whether as the result of warfare, or due to other reasons, Miuan tribes occupied part of their former territory, and cut off from the main body a small community of their people on the west side of the valley and well beyond the northernmost territory recently occupied by them.

In the northern part of Tulare County, near Mill Creek, Eshom Valley, and upper Kings River, is a cluster of small tribes related to the Paiutes, who occupied a vast territory east of the Sierra Nevada. It is not improbable that a small party of Paiutes who had come to the western slope of the range to trade might have been prevented by early snow-storms from returning to their people, thus becoming the founders of a colony in Yokut territory; or a war party, finding living conditions more favorable west of the summit, might have purposely remained to hold by force the land taken by them.

It has been estimated that the Yokuts numbered about 5000 or 6000 souls when first discovered by white people. As already explained, there was never a shortage of food in their territory, and there was no necessity at any season of traveling great distances to

reach their hunting-grounds, to secure fish, or to gather from tree and shrub and smaller plants the natural products of the soil. The climate, too, was mild, their raiment was simple, their habitations of light construction, and the material for both was always near at hand. Yet, notwithstanding the abundance of food supplies, they were not improvident. Great quantities of acorns and edible seeds of certain plants were gathered and stored in skillfully built and thatched "granaries" set above the ground in trees or on rocks, logs, or posts. They also dried and stored a great amount of berries and fish and water-fowl and the meat of small animals.

It being unnecessary to wander to great distances in search of food and raiment, or to invade neighboring territory to secure these necessities, or to repel raids into their own domain for the same purpose, the Yokuts were less warlike and aggressive than the trans-Sierran tribes, who were compelled to protect from trespass every part of the vast extent of unproductive area claimed by them, and not infrequently to invade by force the territory of neighbors to obtain food.

Owing to the great altitude of the Sierra Nevada, deeply covered with snow eight months of the year, and the distance between the habitable areas of the Paiutes and Yokuts, the latter were safe from invasion by large bodies of the warlike mountain Indians, whom they greatly feared. Their neighbors west of the Sierra summits had no occasion for aggression as a tribal movement.

While the several Yokut subtribes had what might be termed home ranges, which they usually occupied in the rainy season, the valley divisions went into the hills in the spring and summer, and the hill people at times came to the valley to hunt big game and water-fowl. Parties from all subtribes strolled about in small bands hunting and gathering acorns, seeds, and various plants used for food, and at times wandered into distant parts of the Yokut dominions. And although these journeys for considerable distances were not uncommon, each division remained an entity under its own chief and continued the greater part of the time in its own territory.

In the hills boundaries between tribes were defined by cairns, known as *wai-tung-ets*. On the plains the homes of the subtribes, always in the vicinity of streams or bodies of water, were known and respected, but the open prairie, at a distance from water, was used by any or all as a common hunting-ground.

Near the south end of Tulare Lake, near where Kings River entered the northern end of that body, and on Packwood Creek near where Visalia is situated, were large villages, the sites of which were continually occupied. There were also a few smaller villages of a permanent or semi-permanent nature. A larger number of small villages were of a temporary character, and were maintained only for short periods in any one locality, although their occupants might from time to time return to the same vicinity.

While these Indians were not compelled by necessity to leave Yokut territory at any time for any purpose, still the wanderlust inherent in those who do not dwell in permanent abodes, or the love of adventure or desire for barter, caused small parties to travel to great distances. It is known that they wandered southward into the Mohave Desert, westward to the Pacific Ocean, northerly to San Francisco Bay, or at least to its vicinity, and eastward to the summit of the Sierra Nevada. Seldom if ever, however, did they go beyond the easternmost mountain passes into the country of the little-trusted Paiutes. And not infrequently the Yokuts were visited by parties of other tribes from all the territory known to them.

They had fairly well-defined trails leading in all directions from the valley, and it was their custom when traveling to keep to the well-known routes. There was no difficulty in traveling northerly, southerly, or westerly to the ocean, but to cross the Sierra only the most favorable passes could be employed. It is known that one trail led through Kings River Cañon to the other side of the range, and that others led from Poso Creek, Tule River, and from the Middle Fork of the Kaweah, by Farewell Gap, to Kern River, thence across the eastern divide south of Mount Whitney to Owens Valley.

Buckskins and other articles were taken to the coast to trade for ornaments made of sea-shells, and these ornaments, as well as buckskins and acorn meal, were carried to the farther passes of the Sierra to trade to the Paiutes for salt and the nuts of the piñon. The Paiutes made salt by evaporating water from salt springs, and Yokuts who later visited their country with white men became very angry when they learned how easily the salt was procured and how the Paiutes had required them to bring heavy loads of merchandise the entire distance across the mountains in exchange for a very small amount of it.

Each of the several subtribes had its own chief, and the larger

ones subordinate chiefs, none being hereditary. A chief was sometimes succeeded by a son, but not because of a rule. Over all the subtribes was a head chief, but not always from the same subtribe. At the time of a massacre of the first white settlers, in 1851, the large force of Indians present was said to be under the command of a Ka-wi-a chief, known as Francisco. A short time after another Ka-wi-a chief, Juan José, who, like his predecessor, had been given a Spanish name, was the senior chieftain. Later the head chief belonged to the Wiksumnes. Just how much power they had is not known; but it is certain that their authority was acknowledged by the other chiefs, and that they were much respected by the people.

Intertribal relations amongst the Yokut divisions were usually friendly. There was more or less jealousy between the several tribes, much as between some more civilized communities, especially between those who were not near neighbors; and sometimes misunderstandings resulted in encounters in which a few men were killed.

There were more frequent battles with the Indians from east of the Sierra. If a small party of mountain Indians appeared in Yokut territory, they were generally attacked to even up old scores; but if the party was a large one, there was no fighting unless the invaders were the aggressors. The Yokuts attacked only small numbers unless forced to fight.

Misunderstandings and affrays between the Yokuts and the Wuksachi and kindred tribes of Paiute origin near Eshom Valley were more frequent than between the related Yokut divisions, perhaps due to the fact that the Wuksachis were of a different linguistic stock and were considered to be invaders in Yokut territory. It is stated that a Yokut chief proposed a conference between the leaders of the quarreling tribes, as a result of which a treaty of peace was entered into. The conference was followed by a great feast, and thereafter disturbances were localized and infrequent, and between small numbers only.

The language of the Yokuts was unlike that of the Paiutes or their northern neighbors, the Miuans. All the Yokuts used the same speech, but with such differences as one finds in adjacent shires, cantons, or provinces of European countries, such variations due in a measure perhaps to association with neighbors of other linguistic stocks and to lack of frequent association between the more distant Yokut divisions. The names of some of the subtribes

were pronounced differently by neighbors or those more remote. The Telumne subtribe, for instance, was known to some of the Yokuts east of them as *Tedumne*, and to the Pungkalaches on Deer Creek as *Telumneal*. The Potwishes were known as *Botwisha*, *Padwisha*, *Palwisha*, and by other names.

Like other tribes of American Indians, they had their medicine-men, who were not chiefs, and who, in order to qualify as practitioners, were required to undergo a period of instruction and to show themselves immune to the effects of certain poisons. In administering to the sick they employed charms of various kinds, rattles of mysterious composition, hideous noises, and contortions of their faces and bodies for the exorcism of evil spirits, used medicines and various forms of treatment for the common ailments, and at times engaged in solitary meditation, until an inspiration was received as to the cause of the malady and proper treatment to effect a cure. When once a treatment was decided upon, the Indian doctor had implicit faith in his remedy, stated positively that the patient would recover, and then gave no further attention to the matter.

When a doctor lost his third patient it became the right and was considered to be the duty of the relatives of the deceased to put him to death. The writer has known of three such executions. On one occasion three young men, related to or friends of his last victim, went to the home of the doctor, who evidently felt that he had forfeited the right to live, for they found him sitting alone in his cabin with eyes turned to the floor; he offered no resistance or objection, and no explanation in extenuation, as the executioners without a word ended his life with rifle-bullets. A famous medicine man of the Tachi tribe near Tulare Lake was a successful practitioner, and was frequently called to distances of fifty miles or more to treat Indians who were ill. His fees were large and customarily collected in advance, his treatments unique and the results satisfactory. He died a natural death recently when about eighty years of age, thus establishing a record second to none among Yokut doctors and seldom if ever equaled by his white brothers of the same calling.

The Indians, and particularly the women, had a remarkable knowledge of the medicinal properties of plants. They prepared purgatives, emetics, poultices, decoctions of various kinds, and ate roots of some plants and leaves and stems of others for the beneficial effects of their juices in certain cases, and understood the necessity

of a varied diet. They resorted to scarification as a counter-irritant, used small flint chippings for bloodletting from the temples to relieve headache, and likewise employed many remedies possessing no more curative powers than the croup-strings and other charms believed in by our grandmothers.

As with most of the Pacific Coast tribes, sweat houses were common amongst the Yokuts. The sweat house, or *sa-ha-la*, was constructed by making a circular excavation near the bank of a stream and placing the trunks of small trees above, extending from the rim of the excavation to a point above the center. Branches of trees and grass laid upon them were covered with earth. A narrow entrance was left, which could be closed by a curtain of skins. When used by them, a fire was made in the center, about which they danced until perspiring freely, when they ran out and plunged into the stream. Large sahalas were used for ceremonial dances. In the smaller ones men danced every morning and plunged when perspiring into the cold water, and sometimes the sweat houses were used in cases of illness.

The habitations were of light material, usually dome-shaped, consisting of a framework of willow or cottonwood, over which were thrown mats made of tules. Larger houses of the same material, made in the same way, but in the shape of an A-tent, were long enough to accommodate several families.

Marriages were usually monogamous, but some of the chiefs and other prominent men had two or three wives. The weddings were simple affairs, consisting of a brief ceremony in which the bride and groom partook of food from a basket set before them by their mothers.

After the birth of a child the parents abstained from certain kinds of food for a fixed period and otherwise observed the advent of the new member of the household.

When deaths occurred the effects of the deceased were burned or buried with him, and the funeral was followed by a period of mourning. In one of the Yokut subtribes the dead were burned; in some the chiefs were burned and the common people buried; in others all were buried in a sitting posture in graves excavated by the women, generally in a sandy spot where the digging was not difficult; and in at least one the body was placed in a secret grave at night.

The men did the hunting, trapping, and most of the fishing, and made and carried their own implements of warfare and the chase. The women performed practically all other work, and were the burden-bearers in and about camp and the trail. They built the houses, gathered fuel, harvested grass-seeds and plants for food, pounded acorns and seeds into meal, selected material for and made baskets, skinned and cut up the large game killed by the men, cooked the food, and when changing camping-places, carried all household goods in baskets supported on their backs by straps passing around their foreheads.

The wearing apparel of the Yokuts was scanty. Children were naked until fourteen or fifteen years of age. The men wore about the loins a narrow strip made of rye grass, and sometimes had simple garments of skins. The women wore short skirts made of bark when at work, and more elaborate ones of the skins of mud-hens and other water-fowl at other times. For dress occasions they wore skirts of buckskin tied about the waist, the bottom part of which was split into numerous narrow strips or strings. Robes were woven from strips of rabbit-skins cured without removing the hair.

The women wore strings of beads made of bones and shells. The men were also fond of shell trinkets larger than those of the women, and they sometimes wore large ornaments in slits made in the ears and nose. Tatoo-lines on the chins of the women were made by cutting the skin with sharp pieces of flint and rubbing charcoal into the scarified surface, blue markings resulting after healing.

Many stone implements of finished workmanship were made by the Yokuts. In the valley mortars and pestles were shaped from granite and other boulders. In the hills exposed granite surfaces and water-worn stones from the river-beds provided the means for pulverizing acorns; but in the valley where no rock was to be found the mortars and pestles brought from the mountains were highly prized, and the owners had ample time to fashion them into approved shapes. Arrow-straighteners were made of slate or other close-grained rock; arrow-points, spear-heads, knives, and scrapers, of obsidian; hammers and warclub heads, ceremonial stones, metates, and rubbing-stones, of hard boulders and cobbles of various kinds. Steatite was employed in making pots for cooking, and heaters to be suspended when hot in baskets filled with water to bring it to the boiling-point.

From bone were made points for fish-spears, fleshers for cleaning hides, awls, needles, and beads. Fish-seines, carrying-nets, head-straps, and thread were fabricated of milkweed fiber. Brushes for cleaning baskets and pots used for cooking were made of the stiff fiber of soaproot. Bows were made of various woods, backed with sinew, and arrows were made of reeds tipped with hardwood, and of branches of a shrub known as arrow-wood and tipped with obsidian or flint. Arrows were carried in quivers prepared from the skins of animals. Pottery was molded from suitable clays by shaping from the bottom upward and burning, and seemed to be used for containing cooked food rather than for cooking.

Meat was boiled in soapstone pots or roasted, usually the latter; and several articles were cooked in baskets containing water, which was kept boiling by placing therein hot stones, which were handled by the aid of the tough and flexible stems of shrubs twisted into such shape as to hold them firmly while passing from the burning coals to the baskets. The dried meat of birds and small animals was cooked by being first separated into small bits and then placed with live coals in a shallow tray of basket material and shaken as one would a corn-popper.

In cooking the Indians knew the value of salt for seasoning. There are no salt deposits or springs in Yokut territory, but a certain weed which has a salty taste was burned on a flat rock and what remained after the ashes were blown away was used for seasoning food. Accumulations about a sulphur spring near Three Rivers, which contained a very small amount of salt, were also used for the same purpose, but the result was said to be far from satisfactory. Most of the salt used was obtained by traffic with the Paiutes, as already stated.

These Indians had an intimate knowledge of the habits of animals, birds, and fish, and employed many ingenious methods of taking them. Bows and arrows were used in slaying large game, and spears or lances were used by the hunters of some of the tribes for dispatching wounded animals. An arrow was sometimes shot through the body of a deer or elk. Before starting out to kill large game it was the custom of the hunters to resort to the sweathouses to induce free perspiration, after which they plunged into a stream; this not being a religious ceremony, as many have supposed, but for the purpose of freeing the body from human odors that might alarm

the animals and prevent approach to bow-and-arrow range. Antelope, always extremely curious, were often induced to approach within range of a concealed hunter by displaying some object to attract their attention and arouse their curiosity. Elk and deer were generally approached by stealth. At times when there was no danger of a prairie-fire large clumps of a tall bushy weed were set on fire at the windward side, and hares, rabbits, coyotes, skunks, and other animals, as they ran out, were shot by hunters who had previously surrounded the place. Ground-squirrels were suffocated in their burrows by smoking, and afterward removed by digging. Some animals were also taken by snares of various kinds. Their knowledge of the habits of quail, doves, pigeons, and water-fowl enabled them to shoot or snare great numbers with little effort.

The habits of fish they knew equally well. Many were caught by using long spears with a detachable bone point fastened by a short string to the shaft. In the San Joaquin River many tons of salmon were taken and dried. In the streams to the south which did not communicate directly with the ocean there were no salmon, but other kinds of fish were plentiful. In addition to the spear, traps were used; and certain kinds of berries and the leaves of some plants, such as the turkey-mullein and smartweed, when bruised and thrown into quiet pools in the streams, stupefied the fish and caused them to float on the surface, where they were caught with the hands. The large lake trout went from Tulare Lake up the various streams into the mountains during high water, and when they returned, after the freshets subsided, great numbers became stranded on the sand-bars and were killed with clubs. A smaller species, known as "forked-tails," crowded the small streams in the spring, and were thrown out on the shore by hand until no more were desired.

To describe in detail the many ways in which the Yokuts secured game and fish of the many kinds known to them would extend this article to undue length.

Grasshoppers and the larvae of certain insects were eaten with much relish. The former were sometimes slightly singed and were often mashed with acorns and made into a flour, which was declared to be very palatable.

The oak forests of the plains, foothills, and mountains produced acorns in abundance. Those grown in the lower altitudes were sweet, but the kind preferred was the large bitter acorn of the black oak

gathered in the mountains. When approaching maturity, the acorns were knocked from the trees with long poles, after which they were gathered into baskets and carried by the women to caches and there stored for future use. Those desired for early use were split open and the kernels extracted and spread on rocks to dry. When thoroughly dried they were placed in mortars, or in mortar-holes found in hard granite exposures that were used for this purpose for generations. After being pounded with a pestle, or a smooth stone selected from some stream and used as a pestle, the meal was sifted into baskets from time to time, the coarse grains being returned for further pulverizing. When a sufficient quantity had been converted into flour, a circular and shallow excavation three or four inches deep and two to three feet in diameter, lined with leaves and filled with flour, was made in a bed of coarse and clean sand. Water that had been heated to boiling-point in a basket, by placing therein small hot boulders, was dipped out with a smaller basket and poured on layers of leaves near the center of the excavation, after which it was left to stand in order to permit the leaching out of the tannin and the bitterness. Water was applied as often as necessary. After the mass became thoroughly dried, the large loaf was broken into smaller pieces and eaten as bread, or moistened and served as mush.

The seeds of certain grasses were harvested by the women, who held a basket in the left hand and with a small tray in the right hand knocked the ripened seed into the basket. The grain, freed from chaff by winnowing, was also pounded into meal.

Several plants, such as burr-clover, sorrel, and Indian lettuce, and edible roots, were consumed in quantities without cooking. Leaves of a number of plants were boiled and eaten as greens. A kind of soup was made of the seeds of the peppergrass. Berries of various kinds were eaten fresh or dried. Some varieties known to be poisonous when first picked were cooked in a manner to render them harmless. The bulbs of many plants were eaten raw, but other kinds were cooked before eating. Fungi growing on oak, cottonwood, and willow trees were eaten fresh or roasted, and were considered delicacies.

When they were unable to procure acorns, they took the fruit of the buckeye, commonly known as buckeye-balls, and treated it by laborious methods to make it edible, but this was not a favorite article of diet.

Yokut baskets are justly celebrated. The materials from which they were made were carefully selected at the proper age and season, and split when necessary into two, three, or four parts for future use. Three colors were used: white, black, and tan. The roots or other parts of shrubs employed were of the colors desired, and no dye was used except when white roots were turned to a fast black by immersing them in water containing iron. Sometimes the coloring matter was secured by gathering the material deposited about springs showing red iron stains, and at other times by immersing pieces of iron ore in the water. They made pointed carrying-baskets, flat-bottomed baskets for ordinary use, open-work baskets for berry-picking, smaller baskets to eat from and to wear on the head; and from the same material made trays, scoop-nets, and sieves for various purposes.

Certain tribes made baskets of shapes unlike those of others, in some instances the differences being slight, but sufficient to denote the place of origin. The work of expert basketmakers was readily recognized by other Indian women. To describe in detail Yokut basketry, the gathering and preparation of the materials used, to give the reasons for selecting the chosen material, and to specify only the conventional designs employed by basketmakers would require space greater than that given to this article.

The Yokuts were inveterate gamblers, and used various devices in playing their several games of chance. They also had other games, participated in by few or many people. They had songs and dances for all occasions, some of the latter being short and simple, others longer and more complicated. They entered into these with much gusto and enjoyment, but seldom with outbursts of merriment. They danced and sang in unison to the accompaniment of a rude tom-tom or of slapsticks held in the hand and shaken.

In a dance participated in by snake-doctors only, rattlesnakes were used, but the dancers did not handle the reptiles, as the Hopis do. At the conclusion of the dance the serpents, of different species, were turned loose. Sometimes the bystanders contributed a collection of articles prized by Indians and offered the lot to anyone who would allow a rattlesnake to bite him and trust to the skill of the doctors to prevent the poison from resulting fatally.

Among the few remaining Yokuts only the older men and women of the fast-disappearing tribes now keep alive the former practices

and beliefs. Some of the once numerous divisions of this people have not a single member living, and others are represented by a few families only.

The survivors are a small but self-supporting remnant of a once numerous and contented people, receiving little regard from those who occupy the land which once was theirs. They are peaceable and truthful, sullen or revengeful when mistreated, inclined to inebriety when liquor is available, trustful when trusted, and usually capable and dependable as workers. They are entitled to and worthy of greater consideration than has been shown them.





CALAVERAS GROVE OF BIG TREES
Photograph by Walter L. Huber

DUCKING TRAILS AROUND THE WORLD

BY JESSE B. AGNEW



MRS. AGNEW and I left San Francisco on May 9, 1925, and our first stop was in the Hawaiian Islands. Our Hilo friends took us up to their mountain cabin near Kilauea so that we might see the volcano, which was then perfectly quiet. Just a year ago, however, when the great eruption took place, and Kilauea hurled rocks, steam, and mud four miles high, our friends had to run for their lives in the midst of the falling stones. They pointed to one rock that would weigh ten tons which fell within twenty feet of them in their flight. I had seen Kilauea in full eruption, so could visualize what happened. We got a good view of Mauna Loa, said to be the largest single mountain in the world, and saw the snow-capped Mauna Kea (13,825 feet), the highest mountain in the islands. Haleakala was in the clouds when we were on Maui; so we contented ourselves with a ride up Iao Valley, where we saw some fine "needle-point" pinnacles. On Oahu we went up Tantalus and over the Pali.

In Japan, we climbed from Nikko to Lake Chuzengi, and saw the beautiful Kegon Falls. The climb was well worth while, for the trail was through the grandest cryptomeria forests. In Nikko the Buddhist and Shinto (lacquer and gold) temples are the most beautiful in all Japan. We also saw the Emperor and Empress, with their suite, arrive at their summer palace.

On our way to Tokyo we got one view of Fujiyama, or Fujisan (12,365 feet), the highest mountain in Japan. We were determined to climb it and waited at Myanoshita for three days for the rains to stop, but they would not accommodate us; so we went on to the sacred island of Myajima. While there, we climbed about three thousand steps up the sacred mountain, Mount Misen, where there are many shrines, and from there we got a splendid view of the islands and mainlands of the Inland Sea. On this island for sixteen centuries no one was allowed to be born or to die. They have a Shinto temple and a great red torii, which at high tide seem to float on the sea.

We spent a week in the Diamond Mountains of Korea, where we

climbed Mount Bambutsuso. These mountains are similar to our High Sierra. We visited Umi Kongo (Kongo Sea) where the Diamond Mountains break off into the sea. In company with my nephew, Francis Agnew Smith, I climbed Mount Toikoksan in North Central Korea, from the Valley of the Golden Castle, a climb of about five hours. Toikoksan is one of the highest mountains in Korea, from which you get a most wonderful view of the mountains and valleys of the Chosen peninsula. There are no well-defined ranges in Korea; they are broken up into many short ranges, running in all directions. There is soil to their very tops and the most abundant growth of wild flowers I have ever seen.

I wish to mention here that Japan has reforested her mountains, and has been doing so for a hundred years or more, until they are real parks. The first thing Japan did after taking Korea in 1910 was to start to reforest all the mountains of that peninsula, and today they surpass all the forest plantings of Europe.

In China, along the old camel trail leading from China to Mongolia, Persia, and Rome, where it crosses the Nankow Pass, I was making some "ducks," so that my Sierra Club friends would not lose their way along this oldest of all trails, worn deep in the solid rock by millions of camels' weary feet and donkeys' hoofs that have trod this stony way for many hundreds of years, when my Chinese guide said to me, "Make-em prayer?" The Chinese and Koreans throw a stone on a pile along the trail, which means another prayer to Buddha. Here at Nankow Pass we climbed the Great Wall of China to the highest peak and had tiffin in one of the old turrets of the wall. I placed a few more "ducks" on the wall to mark the greatest trail ever built by man, a trail that divided Mongolia from China. It is twelve feet wide and some of the steps are almost too steep to climb. I also "ducked" the trail out through the fields of Koalang when we went to the Ming tombs, and had a twenty-two-mile ride in chairs carried by four coolies.

In the Philippines, we went from Manila to the mountain resort of Baguio. In September 29th a party of us left the Hotel Pines for a climb to the summit of Mount Santo Tomas. The trail is picturesque—tropical tree-ferns twenty feet high, and maidenhair in great carpets, with bamboo climbing to the treetops. For about nine and a half miles this trail goes through the old Igorote "head-hunter" country. The view from Santo Tomas was delightful—the China

Sea on one side, the mountains of Luzon on the other. I shall never forget the beautiful rainbow, thousands of feet below me, with one end in Camp John Hay, the other in Baguio. I built a stone monument on the summit of Mount Santo Tomas and placed my name, as a member of the Sierra Club of California, in a bottle and left it as evidence. The Igorotes are the grandest hikers I have ever seen. Every Sunday morning hundreds of them come from every direction, some, with their baskets on their heads, walking forty miles to the big market in Baguio.

The next country we visited was India. We traveled from the most southern point in a northeasterly direction for fifteen hundred miles, mostly through rice-fields. From Calcutta we took train to Darjeeling. At the foot of the Himalaya we took a dinky train—the gauge only two feet—through the Derei Jungle, a most beautiful vine-twined forest. Higher, the mountainsides were covered with tea-gardens. We left our toy train at Ghum, and were called at three o'clock the next morning, when we started out on ponies to ride to the top of Tiger Hill to see the sunrise. We reached the summit (9000 feet) while it was still very dark, and were uncomfortably cold. The clouds hung heavily around the mountains, and we despaired of seeing the view we had journeyed so far to see. However, as the sun rose, a few rays of flaming red peeped through, and presently the clouds melted away and the great snow-capped peaks of Kangchenjunga stood out in all their glory, by far the most beautiful snow-covered mountains I have ever seen, gorgeously sparkling in the sunshine. After we had feasted our eyes on the summits of the Himalayan range for some minutes, the clouds clearing more and more, there were revealed the three white domes of Mount Everest, 125 miles in the distance. Everest was outlined as clearly against the sky as is our old Sawtooth from Visalia. We said good-by to our twenty-five picturesque Indian mountain-climbing companions, whom we found on Tiger Hill, and went down feeling delighted and well paid for the trip.

Our first stop along the African coast was in Mombassa, where we got a glimpse of Mount Kilimanjaro (19,710 feet), the highest mountain in Africa. It is covered with snow and glaciers and lies three degrees south of the equator. It is an extinct volcano, rising from a plateau three thousand feet above sea-level.

Leaving the boat at Beira, Portuguese East Africa, we went by

train to Umtali and motored about four hundred miles through a part of southern Rhodesia, where there are but few villages and ranches, and where we had all kinds of exciting experiences. We saw many kinds of wild birds, guinea-fowls, duikers, monkeys, a crowd of baboons (some with babies on their backs) that scampered away from us; we raced with a beautiful zebra for an eighth of a mile, and a lion bounded across the road not two hundred feet in front of us. In one of the big forests we saw a red mahogany tree which measures fifty feet in circumference and is 216 feet high. At times we had to chop our way through the trees with axes, as part of the way there was not even a native trail. We waded across the Sabi River, not realizing the danger of meeting crocodiles, and motored on to the Great Zimbabwe Ruins near Fort Victoria. These old ruins are one of the world's greatest mysteries, as scientists have been unable to agree upon or discover anything definite to determine just when they were built or by what people they were used. Some say the Phœnicians built them, some say it was a great slave mart.

From here we went to Victoria Falls, where the Zambesi River drops into a fissure four hundred feet deep. The falls are one and a quarter miles wide, and all the water rushes through a gorge not more than one hundred yards wide, forming what is known as the "Boiling Pot." We wore our bathing-suits when we walked through the "Rain Forest," both in the sunlight and the moonlight, and enjoyed peering over the edges to see the wonderful rainbows down in the misty chasms. The native name for the falls is "Mosi-oa-tunya" ("smoke that sounds"), because of the clouds of spray and the roar of the falling water.

In company with some members of the South African Mountain Club of Cape Town I climbed Table Mountain. It was a real climb, where hands were used almost as much as feet, thirty-five hundred feet straight up from sea-level. A fine view (between showers) was gained of Table Bay, Cape Town, the Twelve Apostles, Lions Head, the Atlantic and Indian oceans, and the Cape of Good Hope. Any-one who climbs Table Mountain may qualify as a "human fly." The flora on the mountainsides was especially beautiful and luxuriant.

On December 15th we sailed on the "Awa Maru," a Japanese vessel, for South America. We crossed the Andes from Mendoza to Santiago and Valparaiso on the Transandean Railway. The engine was a double-ender, with ordinary traction at one end, while the

other was for emergency grades, with cog-wheel attachments. The Andes had not a single natural tree, but the mountains are highly colored and of many shades. Crossing the summit at 12,967 feet elevation, we got a view of Aconcagua, the highest mountain in Chile or South America, said to be 24,000 feet, snow-capped, a glacier on its northwesterly lip. It looms up very impressively from Santiago, where it was a prominent object during our stay in that city.

At Arica, where it never rains, we took another train and again crossed the summit of the Andes (14,600 ft. elevation). On the plateau (13,000 feet) we reached La Paz, Bolivia, the highest capital city in the world, where we saw the snow-capped peak of Illimani (21,500 feet). Eight of us chartered an auto-carrillo and went over the Yungas railroad at La Cumbra. We crossed the Cordillera Range of the Andes at 15,267 feet, and followed down one of the tributaries of the Amazon to the timber-line. At La Paz they have the highest golf-course in the world (13,500 feet).

We saw the pre-Inca Ruins at Tiahuaca, thought to date from 10,500 to 12,500 years ago. We took the steamer "Inca" at Guaqui and crossed Lake Titicaca (13,500 feet), and from the deck of the steamer saw a most wonderful sunset on the Cordillera Range—125 miles of snow-capped mountains, not a peak under 18,000 feet, with Illimani (21,500 feet), Illampu (21,950 feet), one at either end—among the grandest sights of our trip.

At Cusco, Peru, we climbed to the ruins of the old three-walled Inca or pre-Inca fortress. The walls were made of blocks of stone so perfectly cut that you cannot insert a knife-point between the joints. These ancients had some art of sawing stone from a mountain that has been lost, but I am of the opinion that they polished the faces by dragging them back and forth in deep grooves on the stone mountainside. These grooves are thought to be glacial, but do not look like glacial polish to me. On this high plateau of Peru we saw five small bunches of vacuna and many herds of alpaca and llama.

We swung into boats by long cranes at Mollendo; passed through the Panama Canal; landed at several points along Central America—one, Tuxillo, where Columbus landed on his second voyage; went ashore at Havana; and ended our boat-ride at New Orleans after eleven months of "ducking trails" around the globe.

TO A FRIEND BACK EAST

BY W. A. BREWER, JR.



YOU who have never seen the purple storm-clouds rise
And billow over Shasta's snowy steeps,
Nor watched old-gold and umber in the sunset skies
Above the pines that fringe blue Tahoe's deeps;
You who have never heard the rushing torrents roar
As madly to Yosemite they leap
And charge full-tongued across the valley's meadowed floor—
With these, you have a solemn tryst to keep!

You are an heir of many mountains' hidden lore,
And still have never heard the night-winds sigh
Among the sugar-pines and firs of Amador,
Nor watched from Whitney how the sunsets die;
You seek dead glacier-gnawings on Monadnock's side,
And still have never seen the stately grace
With which Mount Lyell's living glaciers downward ride—
Take heed, good friend, and westward turn your face!

It was not meant that such as you should hide away
And trace the past among dead mountains' roots,
While living mountains seek aloft the brilliant day
That their gaunt rock to glowing gold transmutes
Above the twilight-filling valleys, dimly blue;
You have not lived until you have seen these—
So come, a neophyte, and have made known to you
The vast Sierra and its mysteries!

SIERRA CLUB

Founded 1892

402 MILLS BUILDING, SAN FRANCISCO, CALIFORNIA

Annual Dues: \$4.00 (first year, \$5.00)

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.



JOHN MUIR, President 1892 to 1914

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SIERRA CLUB BULLETIN

Published annually for the members

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EDITORIALS



WILLIAM E. COLBY'S LEADERSHIP

For twenty-five years William E. Colby has been the leader of the annual mid-summer outings of the Sierra Club. He was chairman of the committee that planned and managed the first outing in 1901, and he has served continuously ever since in the same capacity.

It would be difficult to imagine a Sierra Club outing without Mr. Colby's leadership. It is very largely due to him that these outings have been more than a series of delightful excursions and camping-trips. Under his guidance they have become an institution, exemplifying the highest ideals of social relationship. For four weeks each year the participants have lived in the wilderness, freed from the customs and necessities of civilization. Each, with the minimum of personal effects, has yet found abundance in the common store and in the generosity of his neighbors. The distinctions of age and of worldly experience have disappeared, and self-centered thoughts have given way to the joy of living and the happiness of sharing that joy with others.

Many influences have contributed to establish this institution, and in most of them Mr. Colby has had a share. His extraordinary capacity for carrying heavy burdens of responsibility, his tireless energy, and his ability to anticipate far in advance the needs of two hundred people in a mountain camp have won the admiration of all who have observed them. His passionate love of the beauty and magnificence of nature and his devotion to the highest ideals of human conduct have made his leadership an inspiration. F. P. F.

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ENLARGEMENT OF SEQUOIA NATIONAL PARK Sequoia National Park was enlarged by Act of Congress, July 3, 1926, to include the High Sierra region at the head of the Kaweah and Kern rivers. The summit of Mount Whitney (14,501 feet), the highest point in the United States, is now in the park. The addition includes the main cañon of Kern River, the Big Arroyo and Chagoopah Plateau, the fox-tail pine forest east of the Kern, the Kaweah Peaks, a considerable portion of the Great Western Divide, Redwood Meadows, and the granite cañons at the head of the Middle Fork of the Kaweah.

Not everything was included that members of the Sierra Club have long fought for. We have not yet saved Kings River Cañon and the magnificent region of the Middle Fork of the Kings. Threats of unnecessary power development and of overgrazing still menace these choicest spots in the now rapidly diminishing "Sierra Primeval." There is reason for hope, however, that the territory of the Kings River will be added to the park in the next Congress, and to that end we shall bend our endeavors with renewed spirit.

The enlargement of 1926 came suddenly, and indeed unexpectedly. Early

in the spring it was conclusively apparent that the enlargement bill could not pass unless the Kings River territory were left out. The National Park Service, therefore, acting upon advice of the Executive Committee of the Sierra Club, approved a revision of the boundaries that removed all opposition. No portion of the Kings River watershed was to be included. The southern boundary, as drawn when the bill was introduced, met with no important opposition. As soon as the revision was approved, Representative Harry E. Barbour pushed his bill forward at every opportunity, and, in May, secured its passage in the House of Representatives. There seemed to be little prospect of its coming to a vote in the Senate, but in the closing days of the session, supported by Senator Shortridge, it went forward with the tide and was passed with one amendment. This was the deletion of the name "Roosevelt" from the title. The hyphenated name, Roosevelt-Sequoia, has always seemed to us ill-advised, and, with due respect to President Roosevelt, we are very much relieved. The House accepted the amendment, and the bill was signed by President Coolidge just in time to enable the event to be duly celebrated on the fourth of July.

Next summer the Sierra Club will hold its annual outing in the Sequoia National Park, and will have an opportunity of dedicating the extension with fitting ceremonies.

F. P. F.

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CALAVERAS GROVE ASSOCIATION For many years the people of California have been concerned over the private ownership of the North and South groves of Calaveras Big Trees, with its threat of ultimate destruction. Not until very recently, however, has the danger seemed imminent. Conditions changed completely with the announcement last September of the sale of the South Grove to the Pickering Lumber Company, one of the largest producers of pine lumber in the Sierra, with mills already located within easy reach of the property. This situation has prompted the organization of the Calaveras Grove Association, with Mrs. Harriet West Jackson, of Stockton, as president.

It was the discovery of the Calaveras Groves in 1852 that brought the Big Trees of California into world-wide celebrity. The Big Trees had undoubtedly been seen before that time by trappers, explorers, and immigrants, as, for instance, the Walker party in 1833 and John Bidwell in 1841, but their significance was not recognized. Dowd's discovery in 1852, however, came at just the right moment to cause a sensation. People were by that time awake to the marvels of nature that were being found in the newly populated state. James L. Sperry, a hotel-keeper at the neighboring mining town of Murphys, promptly acquired the Big Tree property and erected a resort hotel, the original structure of which still stands.

The Calaveras Trees became at once one of the most famous spots in California. For many years thereafter a pilgrimage to this spot was on the itinerary of every traveler who came from the East or from foreign lands. Other groves of Big Trees were discovered, but none were found to surpass in beauty or in interest those which were the first to become famous. Today

they rank with the groves of Sequoia National Park as the supreme examples of Big Tree forests.

Certainly it would be a calamity for one generation ruthlessly to destroy these specimens of the oldest living trees, many of which have lived throughout the entire Christian Era. The cause of the Calaveras Grove Association is such a worthy one that each member of the Sierra Club will surely accord it his strongest support.

F. P. F.

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EXIT THE STANFIELD GRAZING BILL One of the most remarkable measures which has been proposed before Congress for many years was the so-called Stanfield Bill, which was introduced by Senator Robert N. Stanfield, of Oregon, and was urged for favorable action during the opening months of 1926. This measure would have affected more than 350,000,000 acres of public lands within the United States. While the measure did not actually pass title to these public lands it would have granted to a small and special class of stockmen rights amounting to practical ownership without responsibilities, payment of taxes, etc. The integrity of the U. S. Forest Service, which has made such a splendid record for wise and efficient administration, was seriously threatened. Quoting from *American Forests and Forest Life*: "In point of special privileges granted, Teapot Dome and the Alaska Coal Claims of Ballinger fame would dwindle into insignificance." The Sierra Club joined with many other organizations, particularly with the American Forestry Association, in opposing this measure. The officers of the club, as individuals, personally attended meetings of local commercial and conservation organizations and there opposed it. Such determined and widespread opposition was aroused that the author of the bill finally amended it with very drastic changes. Even in this form it failed of passage in the last session of Congress, and it is reasonably certain that neither this nor any similar legislation will receive favorable consideration in the present session. It is also interesting to note that the voters of Oregon did not return Robert N. Stanfield to the next Congress as their representative in the United States Senate.

Quoting again from *American Forests and Forest Life*: "Let the spotlight of publicity be turned on any effort of public officials to capitalize conservation to their own ends, or any failure on their part to protect this country's natural resources, and public action is swift and certain." W. L. H.

REPORTS OF COMMITTEES



TREASURER'S REPORT

To the Directors of the Sierra Club:

The following report on the finances of the Sierra Club for the year ended December 31, 1926, is respectfully submitted.

JOSEPH N. LE CONTE, Treasurer

Received:

GENERAL FUND

Dues from 305 new members at from \$2.00 to \$5.00	\$1,131.00
Dues from 1724 regular members at \$4.00	6,896.00
Dues for former years	720.00
Dues from reinstated members	29.00
Dues paid in advance	71.25
Dues from U. S. Forest and Park Officers (13 at \$4.00 for two years):	52.00
Total dues received	<u>\$8,899.25</u>
Interest on savings accounts	164.58
Interest on bonds (portion from Permanent Fund)	42.50
Sale of pins	42.59
Sale of SIERRA CLUB BULLETIN	79.44
Sale of "Place Names"	738.87
Advertising in BULLETIN	496.80
Advertising in local walks schedule	68.50
Sub-lease of portion of office	240.00
Total miscellaneous receipts	<u>1,873.28</u>
Total received	<u>10,772.53</u>
Less checks returned unpaid	32.00
Net amount received	<u><u>\$10,740.53</u></u>

Disbursed:

General Administration:

Salary of Assistant Secretary	\$1,200.00
Extra clerical help	96.15
Office rent, Room 402 Mills Building	900.00
Office expenses, postage, stationery, supplies	394.21
Telephone and telegraph	171.50
Bi-monthly circular and other printing	737.00
Election expenses	126.25
Directors' traveling expenses	99.90
Sundry small expenses	17.09
	<u>\$3,742.10</u>

SIERRA CLUB BULLETIN:

Printing	\$2,851.06
Cuts and photographs	292.75
Distribution	268.70
Cost of securing advertisements	14.25
"Place Names of the High Sierra":	<u>3,426.76</u>
Printing	\$1,976.52
Distribution	36.35
Local Walks Schedule:	<u>2,012.87</u>
Printing (club's share)	235.75
Distribution	79.62
Mountain Lodges:	<u>315.37</u>
Le Conte Memorial Lodge, salary custodian	150.00
Photograph for Le Conte Lodge	6.25
Chapters:	<u>156.25</u>
Southern California Chapter	953.25
San Francisco Bay Chapter	290.49
Miscellaneous:	<u>1,243.74</u>
Taxes	95.33
Library	28.76
Purchase of club pins	30.00
Dues to other organizations	32.00
Contribution to National Conference on Outdoor Recreation	100.00
Contribution to National Conference on State Parks	50.00
Reprint and distribution of circular on grazing in National Forests	116.75
	<u>452.84</u>
Total disbursed	<u>\$11,349.93</u>
Summary:	
Net amount received	\$10,740.53
Balance January 1, 1926	<u>5,870.95</u>
Total	<u>16,611.48</u>
Total disbursed	<u>11,349.93</u>
Balance, December 31, 1926	<u>\$ 5,261.55</u>
On hand:	
Crocker First National Bank	\$1,111.78
American Trust Company	3,166.04
American Trust Company	958.73
Office cash fund	25.00
Total	<u>\$ 5,261.55</u>

Received:

PERMANENT FUND

Four new life memberships	.....	\$200.00
Interest on savings accounts	.....	85.70
Part interest on Liberty Bonds	.....	42.50
Total received	.....	328.20
Balance January 1, 1926	.....	<u>3,982.93</u>
Balance December 31, 1926	.....	<u>\$4,311.13</u>

On hand:

Liberty Bond, 3d, 4 1/4 per cent, par value	.....	\$1,000.00
Liberty Bond, 4th, 4 1/4 per cent, par value	.....	1,000.00
Cash in American Trust Company	.....	2,268.63
Interest coupons undeposited	42.50
		<u>\$4,311.13</u>

On hand:

ROBERT S. GILLETTE FUND

Securities at par value of	<u>\$1,000.00</u>
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On hand:

SPECIAL MEMORIAL LODGE FUND

Securities at par value of	<u>\$5,000.00</u>
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Received:

MEMORIAL LODGE CURRENT FUND

Interest on Gillette and Special Lodge funds	\$ 247.51
Donation to fund	.....	10.00
Balance January 1, 1926	.....	<u>508.42</u>
Total	.....	\$ 765.93

Disbursed:

Part payment of salary of Shasta Lodge custodian	.....	<u>150.00</u>
Balance December 31, 1926	.....	<u>\$ 615.93</u>

On hand:

Cash in Wells Fargo Bank and Union Trust Company	.....	\$ 347.18
Bond coupons undeposited	.....	268.75
Total	.....	<u>\$ 615.93</u>

Received:

NATIONAL PARKS FUND

Balance on hand January 1, 1926	.....	\$1,874.29
Additional contribution to fund	.....	100.00
Interest on savings account	.....	69.46
Total	.....	<u>\$2,043.75</u>

Disbursed:

Printing and distribution of circular on Sequoia Park enlargement bill	.....	<u>291.00</u>
Balance December 31, 1926, in American Trust Company	.....	<u>\$1,752.75</u>

LE CONTE MEMORIAL LODGE

To the members of the Sierra Club:

The completion in midsummer of the new low-level highway following the Merced River into Yosemite Valley brought an unusual number of visitors during the latter part of the season, and with this in view the Le Conte Lodge was kept open to the public until August 15th, instead of closing August 1st, as formerly.

The lodge has proved to be an interesting feature to a great many people, particularly visitors from the East and from other parts of the world; and it is always a pleasure to explain to them what the building commemorates: the highest ideals of the Sierra Club as exemplified in the life of Joseph Le Conte. It has been the custom of the custodian to give a brief sketch of Professor Le Conte, telling of his scientific attainments, the educational influence that he and his brother exerted upon the University of California, and especially his influence upon the young men with whom he came in contact.

Other than the custodian's salary, there has been no expense connected with the lodge. There is so little use for telephone service that the connection with the government system was not requested this year, thereby cutting out a monthly charge of \$6.00.

The Park Service has extended the water system from the hydrant some fifty feet away, so that, with a stand-pipe at the southeast corner of the building, our domestic needs are better met and we have better protection against fire.

The Boston ivy planted several years ago, although of slow growth, has thrived and now with its delicate tracery enhances the architectural beauty of the building.

F. C. HOLMAN, Custodian

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SHASTA ALPINE LODGE

To the members of the Sierra Club:

The Shasta Alpine Lodge was opened May 26 and closed September 30, 1926. During this time 434 persons registered at the lodge and 127 wrote their names in the register at the summit of Mount Shasta, 14,162 feet above sea-level.

The lowest temperature at the lodge (8000 feet) was on June 15th—28 degrees F.; the highest was on July 15th—85 degrees. The first snow-storm occurred on August 29th. The summer was the calmest and driest since the lodge was built (1922), only one-quarter of an inch of precipitation from May until September 30th; on that day and the day following there fell six inches of snow. The mountain was more nearly bare of snow this year than was ever known; nevertheless, we had a good supply of water at the lodge all summer.

A memorial fountain, in honor of the pioneer J. H. Sisson, was built this summer. It is of stone, ten feet in diameter, thirty inches deep, and is surmounted by a marble plaque bearing Sisson's name and date of erection. Three concrete benches were placed at the east of the lodge to enable visitors

to sit there in the evening and watch the alpenglow on the summit of Shasta.

A lawn was planted in front of the lodge and some fifty or more shrubs were set out. Among these were a set of plants presented by Mr. John MacLaren, of Golden Gate Park, San Francisco, from a collection of rhododendrons and other plants sent from the Himalayas, from an elevation of 15,000 feet. It will be most interesting to see if these will thrive on Shasta's soil and stand her winter snows and summer frosts.

A most interesting find was made in the ice of one of the summit glaciers. During August the custodian with two companions dug out of the ice, at an elevation of 14,000 feet, the skull and bones of an animal that was at first supposed to be a mountain-sheep (*Ovis canadensis*). They were sent to the California Academy of Sciences at San Francisco and there identified as the bones of an adult female antelope (*Antilocarpa americana*). The east side of Shasta is a long gradual slope, so that an antelope could easily make the ascent; but when and under what circumstances this animal climbed so high, only to be overcome and lost, can never be ascertained.

The receipts and expenditures for 1926 were as follows:

Receipts:

M. Hall McAllister	215.22
Sierra Club	150.00
Mount Shasta City Chamber of Commerce	100.00
Harry Babcock, San Francisco	50.00
McCloud River Lumber Company	25.00
Siskiyou County Board of Supervisors	25.00
Redding Chamber of Commerce	25.00
Dunsmuir Chamber of Commerce	25.00
Yreka Chamber of Commerce	25.00
Shasta Springs Hotel Co., Wm. Watson & Sons	25.00
Shasta Water Company, San Francisco	25.00
Weed Lumber Company, Weed	25.00
<hr/>	
Total Receipts	715.22

Expenditures:

Custodian, J. M. Olberman	300.00
J. H. Sisson Memorial Fountain	141.64
Fountain at east of lodge	50.00
Flags, pack-train, extra labor, sundries	106.22
Garden and lawn in front of lodge	65.11
Benches of concrete at east of lodge	52.25
<hr/>	
Total Expenditures	715.22

J. M. OLBERMAN, Custodian

M. HALL McALLISTER, for the Lodge Committee

NOTES AND CORRESPONDENCE



JOHN MUIR TRAIL—CONSTRUCTION DURING 1926

Funds were available for construction of the John Muir Trail so late in the year 1925 that an effective start could not be made until the following year. Accordingly, plans for the season of 1926 were perfected during the winter months preceding the construction period, and a very early start was thus made possible. All work for the season was concentrated upon that portion of the trail north of Blaney Meadows and south of Mono Creek, entirely within the Sierra National Forest. The complete reconstruction of the trail joining these points proved to be too much for one season's work, but some of the most difficult parts were finished, and in all seventeen miles of excellent new trail were constructed. From the log cache on the South Fork of San Joaquin River, above Blaney Meadows, an excellent trail was built toward Selden Pass as far as Heart Lake. It is hoped to improve, if not to entirely reconstruct, the remaining portion of the trail between Heart Lake and Selden Pass during the coming field season. From Selden Pass north to Bear Creek the existing trail is fair. From Bear Creek an entirely new trail was built up over Bear Ridge and down into Mono Creek, thus eliminating the present roundabout route through Vermilion Valley.

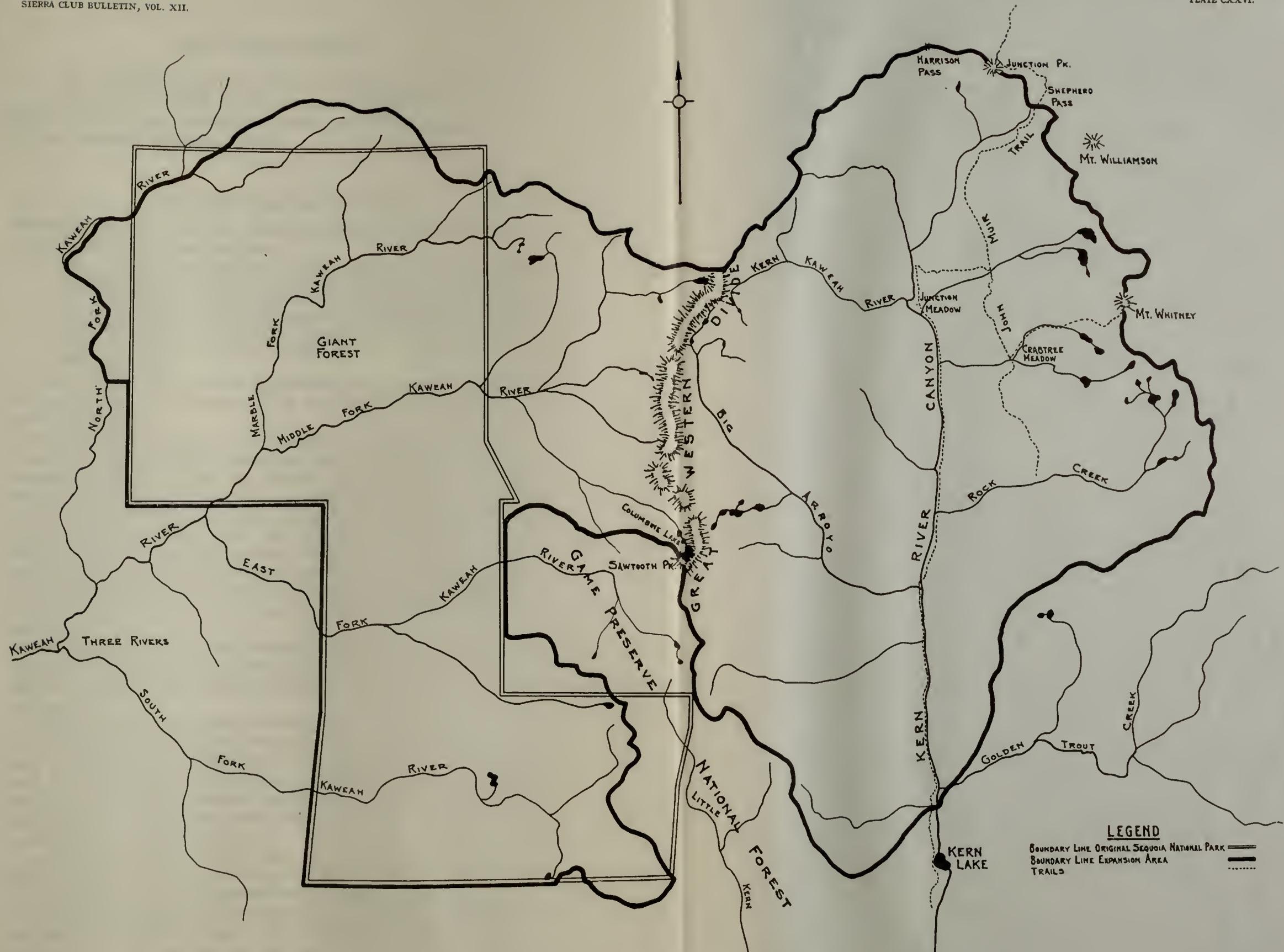
Organization of the trail crews was begun in March. Supplies were trucked over the Southern California Edison Company's road to Florence Lake, effecting a great saving in cost of transportation compared with former years. Powder, meat, and vegetables were also purchased direct from the Southern California Edison Company's commissary at Florence Lake at a material saving.

The old trail to Blaney Meadows, flooded by the Florence Lake dam, has been replaced by a trail constructed around the south side of Florence Lake. Packing of supplies beyond Camp 64, on Florence Lake, was begun in the latter part of May, but the river above the lake could not be forded at that time. All supplies were therefore ferried across in a boat borrowed from the Southern California Edison Company. As this boat was being used by the company during daylight hours, all of this ferrying had to be done at night.

In reporting upon the work Forest Ranger Hughes, who had charge of the crews, says:

"I am especially pleased with the unit from the cache to Heart Lake. The nature of the country on this side made it possible to construct with but few switchbacks and a maximum grade of 14 per cent. On the Mono Pass end we were not so fortunate and were forced to use a number of switchbacks; in fact, we used sixty-six between Bear Ridge and Mono Creek.

"The maximum grade used was 15 per cent. About three miles of trail will average 15 per cent and 14 miles much less, probably not over 8 per cent. Seventeen miles of trail were completed, eight and one-half miles on each end. This leaves a piece of unfinished trail between Heart



BOUNDARIES OF SEQUOIA NATIONAL PARK
As enlarged by Act of Congress, July 3, 1926

Lake and Selden Pass. This will be a difficult piece of work which will require thirty days for a seven-man crew to complete."

The appropriation was practically exhausted, and another appropriation by the 1927 Legislature is urgently needed.

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OVER MATHER PASS FROM THE NORTH

The statement which follows was placed in the cairn on Mather Pass shortly after noon on Sunday, August 22, 1926:

"The undersigned, en route from Florence Lake to Giant Forest, crossed this pass today with twenty-one horses and mules under the leadership of Ernest McKee and Onis Brown. This is believed to be the first crossing by this route, from north to south, with pack animals.—Duncan McDuffie, Jean Howard McDuffie, Henry F. Swift, Florence A. Swift, Lincoln Hutchinson, Robert McDuffie, Richard McDuffie, James S. Hutchinson, III."

The first recorded attempt to take pack-animals over this pass was made in July, 1908, by a party consisting of J. N. Le Conte, J. S. Hutchinson, and Duncan McDuffie.

The object of the 1908 party was to explore and map the highest feasible route from Yosemite Valley to Kings River Cañon—the route which has since become the John Muir Trail. After reaching Grouse Valley on the Middle Fork of Kings River it was planned to work up Palisade Creek to the basin under the Middle Palisade and thence across the divide to the Upper Basin of the South Fork of Kings River. The party camped at Deer Meadow on Palisade Creek and thoroughly explored the terrain from that point to the pass. Examination showed that shod animals had been brought into the Palisade Basin over the pass from the south, but there was no evidence that horses or mules, or even burros, had entered this basin from the lower cañon of Palisade Creek.

The difficulties which presented themselves, though not insurmountable, were too great to be met in the time and with the equipment at the party's disposal, and the attempt to reach Palisade Lakes and thence to cross the pass was abandoned.

Three saddle- and pack-trains are known to have traveled from the South Fork to the Middle Fork of Kings River over this pass. In August, 1921, the party of Chauncey Hamlin, of Buffalo, New York, with Ernest McKee and Onis Brown as packers, after building a rough trail up its south side, crossed the pass and named it in honor of Stephen T. Mather. From the pass they descended by an old sheep-trail to the Palisade Lakes and then worked down a series of chutes into Palisade Cañon.

In the following year (1922) a party led by J. S. Hutchinson crossed Mather Pass from south to north by much the same route taken by the Hamlin party; and this was repeated by Miss Susan Thew's party in 1923.

The 1926 party camped at Deer Meadow on Palisade Creek. Two barriers lay between it and Mather Pass: the wall between the lower cañon and the Palisade Lakes, and the talus and rock shelves between the lakes and the

summit. We had the advantage of the work done by those who had made the descent, but the difficulties met by them were multiplied for us by the force of gravity. As Mr. Hutchinson says in his article entitled "A New Link in the John Muir Trail": "The 'way through' Palisade Creek is at present a one-way route—from south to north—for you can push, slide, and throw animals down places you cannot get them up."*

Two days were spent in work upon the rock-blocked and perilously steep chutes and broken cliffs which offer the only approach from the lower cañon to the upper basin. It then took a full day to move the pack-train less than two miles from Deer Meadow to the lower Palisade Lake. The next day was spent in rebuilding the old sheep-trail to the summit of Mather Pass, and on the day following, Sunday, August 22nd, the entire party crossed from Palisade Lake to the South Fork of the Kings.

The success of this crossing of Mather Pass from north to south was due to the skill and enthusiasm of the party's packers, Ernest McKee and Onis Brown, the same packers who in 1921 had made possible the first crossing from south to north.

Whoever attempts this crossing in the future will find not a made trail, but a track, unless melting snow and rock-slides shall have undone this year's work and blocked the chutes, which afford the only way through.

DUNCAN McDUFFIE

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EL CLUB DE EXPLORACIONES DE MÉXICO

A member of the Sierra Club, Otis McAllister, now a resident of Mexico City, organized several years ago *El Club de Exploraciones de México*, which now has several hundred members. Members of the club have made many ascents of the prominent peaks in Mexico, including Popocatepetl (17,540 ft.), Iztaccihuatl (16,960 ft.), and Orizaba (18,564 ft.). On one of the less-known peaks that had not been visited for forty years members of the club found a ruined Aztec temple.

On November 23, 1926, the club held a reception in honor of Mr. McAllister and presented him with a gold medal as its president and founder.

* SIERRA CLUB BULLETIN, 1923, vol. xi, no. 4.

MOUNTAINEERING NOTES



FIRST ASCENT OF TOWER PEAK, 1870

The first ascent of Tower Peak was made in 1870 by members of the California State Geological Survey.* Prior to 1873 this mountain was called "Castle Peak," but the change was made by the Whitney Survey in order to avoid confusion with two other peaks of the same name.†

Mr. Alfred Craven, who was a member of the party that made the first ascent, dictated in February, 1926, a memorandum of his recollections, of which the following is an abridgment:

There had been several attempts made by different parties of the Geological Survey of California to reach the summit of Tower Peak. The parties who had tried to reach the peak before had approached it from the wrong side, which was the cause of their failure. Our party followed an old trail that crossed the Sierra not a great way north of the peak. We followed this trail up through the foothills from the eastern side until we arrived near the summit of the main range, when we noticed what appeared to be a terrace, or bench, which ran along the easterly side of the range. We found it to be an old emigrant trail on which we found the parts of a large number of old wagons, a wheel here, an axle there, and other parts along the whole distance. As this bench appeared to lead in the right direction, we followed it until, almost before we realized it, we had reached the foot of the peak proper. Here were two small lakes within a quarter of a mile of each other. Just below the lakes the old emigrant trail went down to the San Joaquin Valley.

From our camp by one of these lakes we could look up to the top of the peak, about a thousand feet above, over a pretty smooth slope of snow. The next morning we made preparations for the ascent of the peak, which preparations, I must admit, were rather useless, for soon after we started climbing up the snow slope we found ourselves at the top of the snow with little left to do. There was about a hundred feet of rock protruding above the snow, which presented the only difficulty, and that was not great.

The weather was perfect; it was not cold. We made such observations as we thought essential and then returned quickly, sliding down the snow on flat rocks.

We had left Oakland in April, and it must have been the summer of 1870 that we made this ascent. Our party consisted of Charles F. Hoffmann, in charge, myself as his assistant, and W. A. Goodyear, geologist.

SOME CLIMBS BY NORMAN CLYDE IN 1926

At the request of the editor, Norman Clyde has furnished a list of his climbs in the Sierra Nevada, made during the summer and fall of 1926. Living at

* Whitney: *Yosemite Guide Book*, pocket edition, 1871, p. 86.

† Whitney: *Yosemite Guide Book*, new edition, 1874, p. 131.

Independence, Inyo County, he is able to reach the vicinity of the high peaks in a short time; hence his week-end "hikes" at a season when most of us have to be content with Old Baldy or Tamalpais.

June 10th to 14th—Whitney (14,501), Muir (14,025), Peak immediately southwest of Muir Lake, no cairn; Lone Pine Peak (12,951); Peak (13,115), no cairn, fine view of Le Conte and Langley. 21st—Tyndall (14,025). 22nd—Peak (13,844) near Kings-Kern Divide, no cairn, fine view. 23rd—Barnard (14,003). 24th—Russell (14,190), first ascent. 26th—Peak (13,968) north of Barnard, no cairn; Peak (13,747) south of Barnard, cairn; Barnard again. 27th—Peak west of Russell, no cairn; Tunnabora (13,593).

July 2nd—Peak northwest of North Lake. 3rd—Emerson (13,226), up north face, good view. 4th—Humphreys (13,972). 5th—Several peaks on Glacier Divide. 6th—Pilot Knob (12,237), cairn. 7th—Peak (13,116) north of Emerson, no cairn, good climb.

September 9th—Gould (13,001). 12th—Morgan (13,739), from upper Rock Creek, easy climb, fine view, few ascents recorded. 19th—West Vidette (12,229) and Peak (12,222) south of it, no cairn on latter. 25th—Laurel (11,800), near Convict Lake, good view.

October 3rd—Whitney (14,501), and Muir (14,025). 10th—Junction (13,903), some rock work near summit, good view. 17th—Tom (13,649), from Pine and Gable creeks, up to ridge running west, superb view. 23rd—Kearsarge (12,650). 31st—Peak (11,511), and several pinnacles, south of Sawmill Cañon, no cairns.

November 7th—Temple Crag (13,016), by fifty-foot crack from saddle east of peak, easy going from there to point near summit, fine view of Palisades, cairn. 14th—Peak (13,530) northeast of Birch Mountain, no cairn, fine view of Palisades.

EAGLE SCOUT PEAK

Last July Mr. Emil Gundelfinger, of Fresno, initiated what he hopes will develop into a permanent feature of the training of Boy Scouts in the San Joaquin Valley. He provided an opportunity for a selected group of Scouts to spend two weeks camping in the High Sierra. Only those who had qualified as Eagle Scouts were eligible for the trip, so a high degree of personal efficiency was assured at the start. The trip was a success in every way, and the boys returned to their homes with a knowledge of the high mountain country that they were eager to share with the members of their troops. The route covered the headwaters of Kern River, and all the boys climbed Mount Whitney.

This first expedition of Boy Scouts from the San Joaquin Valley into the High Sierra was commemorated by giving the name Eagle Scout Peak to a prominent point, a little over 12,000 feet elevation, on the Great Western Divide just south of Deer Creek Gap. Three scouts, Frederic Armstrong, Eugene Howell, and Coe Swift, led by Francis P. Farquhar, of the Sierra Club, ascended this peak on July 15, 1926, and finding no sign of a prior ascent, erected a monument and declared its name. The name has since been confirmed by the United States Geographic Board.

NOTES FROM OTHER CLUBS



SAVE-THE-REDWOODS LEAGUE

The Save-the-Redwoods League is moving steadily toward the realization of its chief project, the preservation for posterity of what scientists, foresters, and world-travelers pronounce the world's finest forest—the Bull Creek-Dyerville area in Humboldt County, California. This forest comprises from 12,000 to 15,000 acres, including the Dyerville and Bull Creek flats, and taking in as well a considerable area in the basin of Bull Creek, which flows into the South Fork of the Eel River near its juncture with the main Eel at Dyerville. People throughout the United States have rallied to the support of the movement, and the league now has pledges or funds approximating a million dollars toward the purchase of the area in question. During 1926 a special committee of the league has been negotiating with the owners of this property, and a board of expert foresters was selected to study thoroughly the entire question of redwood values, and to visit the Bull Creek-Dyerville region in order to set a definite and fair valuation upon that property. As a result of their work, negotiations between the owners and the Save-the-Redwoods League are rapidly nearing a satisfactory basis upon which to plan a definite campaign for the preservation of this area.

The league plans to devote its major effort in the next two years to the preservation of the Dyerville-Bull Creek Forest, although there are several smaller projects which it hopes ultimately to carry through, involving redwood areas along the coast in Humboldt and Del Norte counties, and portions of the Smith River-Mill Creek timber-lands of Del Norte County.

Encouraging progress has been made in relation to the outlining of a coherent state-park program. The Save-the-Redwoods League has joined other organizations in furthering this movement, and in encouraging a comprehensive survey of the situation. It is believed that California will soon adopt a clear-cut park policy, in order to retain and to develop its outstanding scenic and recreational assets.

Various substantial funds have been turned over to the league for the carrying out of its objectives, among them being a \$50,000 donation from a resident of New York, Mr. Edward S. Harkness. Support of many clubs and other organizations has been enlisted, and lengthy articles and editorials on the subject of saving redwoods have appeared with increasing frequency in magazines and newspapers. Letters have been received from England, France, Switzerland, Australia, and other foreign countries, expressing interest in the movement.

The league realizes the desirability of keeping the groves already preserved in good condition and of enhancing their natural charm wherever possible. During 1926 Mr. Emerson Knight, landscape architect, was engaged by the league to study some of the present redwood parks, and to map out a program

of construction work in the Graves Grove in Del Norte County and the Franklin K. Lane Grove in Humboldt County. A great deal of the work as outlined was carried through this year, including the building of trails, the beautifying of the groves by planting of native shrubs and plants, the removal of unsightly telegraph poles and wires at points where they marred the primitive aspect of the area. This latter improvement was accomplished through the public-spirited co-operation of the Pacific Telephone and Telegraph Company and the Coos and Curry Telephone Company.

Additional scientific research in relation to reforestation, and characteristics of the redwood, was conducted under the league during the past year, and valuable reports were submitted by Dr. W. A. Cannon, Dr. D. T. MacDougal, and Major David T. Mason.

Several new groves were purchased during the past year, bringing the total acreage preserved through the efforts of the league to over three thousand acres, which represents an estimated valuation of over a million dollars. The Felton Grove, an unusually beautiful area situated at a picturesque bend in the South Fork of the Eel River, across the river from the Bolling Grove, was purchased recently by Mrs. Kate Felton Neilson, of San Francisco, and deeded to the state as a memorial to her father, the late United States Senator Charles N. Felton. This grove consists of one hundred acres, and constitutes a valuable addition to the Humboldt State Redwood Park. It will be formally dedicated on Decoration Day, 1927.

The Cooper property, also acquired during 1926, is an addition to the Henry S. Graves Grove in Del Norte County, and consists of 130 acres.

The Save-the-Redwoods League has received pledges from various individuals to give substantial additional aid at the time the league is in position to announce its definite program. It is hoped that the league can make public such a statement in its annual report, to be published within the first half of 1927, particularly in regard to the project in the Dyerville area, which has been called by many "the most important conservation project in America today."

THE MAZAMAS

The past year has been an active one for the Mazamas. Over two hundred have been added to the membership, bringing the total to over eight hundred.

The annual outing held during the first two weeks in August in the Glacier Peak-Lake Chelan region in Washington, was the big event of the year and a success in every way. About sixty-one participated. Several important climbs were made, and that little-known and unexplored region was visited. This was the center of the greatest glaciers during the Ice Age. It is now a vast area of glacier-torn peaks and deeply cut glacial valleys and cañons. The territory is strewn with numerous glaciers, some of great magnitude. The one to the southeast of Glacier Peak is about nine miles long, and of great depth.

The clubrooms have been moved to the newly constructed Pacific Building, in the heart of Portland, Oregon. A clear view is obtained of the city and the surrounding snow-capped mountains.

Three major official high-mountain climbs were made during the year: Mount Hood was visited by over a hundred; Mount St. Helens, by eighty-one; Mount Adams, by thirty. The Local Walks Committee led fifty weekend trips, which were attended by over 2400. Larch Mountain proved to be the most alluring, 210 having made that climb.

The Research Committee continued its work of measuring the surface flow of Eliot Glacier on Mount Hood. This work has aroused the interest of scientists all over the world. A careful record is made in this work, and it is hoped that other clubs will take a like interest in this investigation. Wooden stakes were set in three lines across the surface of this ice-field, which is about a half-mile wide and over two miles long. On the lower sections, which were strewn with large boulders, lines were made by markings on the most substantial rocks. The terminus has been carefully mapped, and it has been found that it retreated over thirty feet during the past year. The surface has materially melted down during the season. From our investigations it is plain that this glacier is rapidly disappearing. A full report of the committee is printed in the annual magazine. Much of the labor of replacing the stakes as they melt out has been obviated by an instrument devised by Charles Wilson, of the committee, with which it is possible to bore a hole six feet into the ice in about ten minutes. Formerly it required about an hour of hard labor to do the work. He also devised an iron cross to be used as a marker, which will do away with the stakes, and the resetting of them will not be necessary. Both of these devices will probably be used by others in making like investigations.

The building of our new high-mountain lodge has been delayed, but plans are now made to build the first unit as soon as weather conditions will permit. It is to be constructed near timber-line, in Paradise Park, on the westerly side of Mount Hood. This will provide a much needed shelter for high-mountain climbers in summer, and for the strenuous ones who are seeking better skiing facilities in winter-time.

The club has selected the north side of Mount Rainier as the base for the next annual outing, during the first two weeks in August. A partial prospectus of this trip appears in our annual year-book. On account of the increased activities among the members, it is anticipated that it will be the greatest event in the history of the club. Members of other mountain-climbing clubs, or those interested in this sport, are cordially invited to be with us.

FRED W. STADTER, President

THE MOUNTAINEERS

With a maintained membership of approximately eight hundred, The Mountaineers have concluded their twentieth year of steady achievement. For the fourth time in the history of the organization the club this year conducted a summer outing in the tumbled fastnesses of the Olympic Peninsula. Seventy-one climbers, the largest party yet recorded, made the ascent of Mount Olympus. The latter part of the ninety-mile journey was made down the rapids of the Quinault to the ocean beach in Indian canoes.

Weekly local walks proved increasingly popular. Each Wednesday evening

throughout the summer beach parties drew enthusiastic attendance. Succeeding the beach parties, during the winter months, "mixers" have been held in the clubrooms. The regular monthly meetings have continued to provide the membership with lectures on alpine lore and achievement.

Irish Cabin, located on Irish Creek near the north boundary of Mount Rainier National Park, was recently secured as a week-end rendezvous by the Tacoma Branch. Everett Branch, with a base camp near Mount Pilchuck, has conducted many trips in the nearby Monte Cristo region. Snoqualmie Lodge's intimate seclusion in the Cascades continues to be invaded by groups seeking winter-sport adventure. Kitsap Cabin, a woodland retreat near Chico, has been enhanced by the construction of a unique and beautiful sylvan theater, built by the Mountaineer Players, a dramatic organization within the club. The winter outing, held in Paradise Valley, and sponsored annually by the Tacoma Branch, was the major undertaking of the New Year season.

Investigation of depredation of the state's reserve forest tracts by overgrazing of sheep has been forwarded under the leadership of W. W. Seymour, of Tacoma. It is hoped that some restraint may be arranged to control this devastation, especially along passes frequented by travelers.

Plans for the 1927 summer outing in Robson Pass, Canadian Rockies, are being formulated rapidly. F. B. Farquharson is chairman of the outing committee. Mr. Farquharson has been scouting in the Robson region for the past two summers; he led a party of twelve Mountaineers into that territory last season.

APPALACHIAN MOUNTAIN CLUB

The club celebrated its fiftieth anniversary with a formal meeting on February 6th and by issuing a special number of *Appalachia* (vol. xvi, no. 3), which contains a résumé of the club's history and a copy of the program of the meeting of February 6th, a special feature of which were greetings from other organizations. The Sierra Club was well represented by Hon. Stephen T. Mather and by letters from Messrs. William E. Colby and E. W. Harnden.

This has been a banner year for excursions. The usual winter trips drew crowds to the mountains of New England and New York; many enjoyed a trip to the Shenandoah Park in May; in August a party of thirty-two had the pleasure of climbing with the Sierrans in the Sierra Nevada; and in September some three hundred went over the border, up the Saguenay River, and along the Gaspé Peninsula. Another number of *Appalachia* (vol. xvi, no. 4) appeared in December, containing Dean Peabody's illustrated account of the excursion with the Sierrans.

WILLIAM P. DICKEY

COLORADO MOUNTAIN CLUB

The year 1926 has been an active and profitable one for the Colorado Mountain Club. One of the most notable accomplishments has been the record of the Boulder branch for last summer. The location of the University of Colorado at Boulder has given this branch of the club an opportunity, of which it has made increasing use throughout the years, of bringing the mountains and the summer visitors at the university together. The university now recognizes the club branch as sponsor for the recreation of the summer students,

and has given it the use of the University Camp, consisting of two large lodges, nineteen cabins, and a number of floored tents. These are also available to others who wish to enjoy outdoor life in the mountains at moderate expense. During this year, 3242 people took thirty-six trips under this leadership. The trips consisted of short local hikes and beefsteak fries, week-end camping trips, and automobile excursions, under the supervision of a recreational director with three assistants and a number of volunteer guides from the local club membership.

The main summer outing of the Colorado Mountain Club was an out-of-state affair—three marvelous weeks in Glacier National Park. The winter outings were the usual one in Rocky Mountain National Park; the week which the Boulder group spent at Ward, Colorado; and numerous ski trips of a day or week-end scheduled regularly throughout the winter months.

Many of the members of the club are of the "prairie-dog" variety, and though they love their mountains, can follow their "mountain-goat" friends through them only by means of lectures and movies. These are always a feature of the winter program. The Mount Everest pictures and talk given last fall by Captain Noel of the expedition, will ever remain the outstanding event.

OLIVE HENSLEY

CALIFORNIA ALPINE CLUB

The mountaineering activities of the California Alpine Club in the Sierra during the past year, while confined to some of the lesser peaks, were worth while in that a large number of the fifty-seven members of the eighth annual outing were able to climb the principal peaks in the vicinity of the trip.

The region visited was that of the cañons, basins, and peaks at the headwaters of Bubbs Creek and Woods Creek in the South Fork of Kings River. Starting at Big Meadows, the trail was followed through Summit Meadow into Kings River Cañon. Above Kanawyers the route chosen was the new trail to Paradise Valley. Several lay-over days were enjoyed here as well as at Rae Lake and Vidette Meadows, permitting the more ardent mountaineers to climb Goat Mountain, Fin Dome, and Mount Brewer. On the official trip of the party to the top of University Peak (13,588 feet) twenty-seven members made the ascent.

The Annual Outing Committee has announced that the ninth annual outing will be held in the Middle Fork of Kings River from about July 9 to 23, 1927. Members of the Associated Mountaineering Clubs of North America are eligible to make this trip, providing that reservations are made in time. The party is limited to about fifty members.

The club has been active in the Mount Tamalpais park work, initiated by President Jesse K. Brown in co-operation with the Tamalpais Conservation Club. The Marin Park Committee of the Tamalpais Conservation Club has charge of the campaign, to which the full co-operation of the California Alpine Club is pledged.

SAN FRANCISCO BAY CHAPTER NOTES

With the passing of another year into the annals of the past the time has come to take stock of the things it has accomplished, and also of the hopes it has left unrealized. With the San Francisco Bay Chapter of the Sierra Club it has been a year of continued prosperity, with few outstanding events, but with a general record of very satisfactory progress.

The local walks have been well planned and well conducted, and have been varied, interesting, and beautiful. The attendance has been consistently gratifying. Many have thus had their love of nature broadened and deepened, and many new members have been brought into the large activities of the club through the interest aroused by attending these walks.

The most ambitious outings of the year were an overnight trip to the Pinnacles National Monument, and a three-day trip to the Big Trees of Calaveras County, with a detour to Murphys Cave on the return. Both were well attended and greatly enjoyed. Seeing the fantastic and imposing rock formations of the Pinnacles gave us an understanding of their value as a heritage to all the people; and the beauty of the Calaveras sequoias and their surrounding forests made us anxious to assist in the movement to preserve them for all time as a public park.

Several lectures have been given during the year, and have all been well attended; one on his African trip by the late Dr. Saxton Pope and one by Dr. Vernon Bailey on the Carlsbad Cavern of New Mexico being particularly successful. Our thanks are due the Pacific Gas and Electric Company for the use of their auditorium, together with the many courtesies extended.

Our local walkers are greatly concerned over the proposed turning of the Pipe Line Trail on Tamalpais into an auto road, with the simultaneous cutting up of a large area adjacent to Muir Woods into cabin sites. The Tamalpais Conservation Club is working earnestly to prevent this despoilment of our favorite hiking country; and the organized clubs are co-operating with them in an attempt to preserve this beautiful area as a public park.

In line with our efforts to acquaint ourselves with worthy conservation projects, we tried to plan a trip to the Bull Creek Flat redwood grove for last summer; but owing to the expense coupled with the unfortunate position of all holidays, it proved impracticable. But we hope that the future may bring a juxtaposition of holidays which will render possible an outing amongst these great trees.

Standing on the threshold of a new year, we look forward with hope for opportunities of accomplishment in the great work of the Sierra Club in preserving the natural wonders of our state, and in educating its people to a sense of their beauty and worth, not only to themselves, but to all future generations.

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SOUTHERN CALIFORNIA CHAPTER NOTES

The year 1926 has been an interesting one in the history of the Southern California Chapter, and while many of the events of note have been chronicled in the *Bi-Monthly*, and others are dealt with in the general articles of this num-

ber of the BULLETIN, there are still some matters worthy of mention in these notes.

The question of the uses to which the trail fund should be devoted came before the Executive Committee at the May meeting, and a motion was passed, originated by Ernest Dawson, that the trail fund should in future be available for trail-building, sign-posting, and other club purposes, on the vote of the Executive Committee. The trail fund was first collected at the suggestion of H. E. Bailey, and was intended to cover unexpected expenses incurred on club trips; but as the trips have grown in popularity they have become self-supporting, and the fund has greatly increased, so that it seemed best to make it available for general club purposes. By vote of the Executive Committee, September 13, 1926, \$200 was contributed by the Southern California Chapter toward the cost of building a new trail to the Public School Reafforestation Station on Clear Creek. There was a doubt in the minds of some of the committee as to the advisability of contributing so large a sum to one project, but Miss Aurelia Harwood offered to give the whole of this amount to the trail fund if it would be used for this purpose.

Miss Harwood resigned from the Executive Committee in October because of intended absence. At the November meeting a resolution of appreciation of her activities was passed in the following terms:

"Resolved, That the Executive Committee of the Southern California Chapter of the Sierra Club hereby expresses its deep appreciation of the constant thought and effort devoted to the interests of the Sierra Club by Miss Aurelia Harwood, and desires to thank her for the splendid work she accomplished while a member of the Executive Committee."

The Executive Committee took up the work begun by the Garden Club of Pasadena, and passed a resolution disapproving the practice of disfiguring the natural beauty of the country by cutting letters and signs on the mountain-sides, calling upon the United States Forest Service to prevent further defacement of this character, and to endeavor to blot out such signs as already exist.

The Angeles National Forest, our nearest mountain playground, is becoming more and more opened up by the building of new roads into the very heart of its territory. A road is at present under construction across Barley Flats and Pine Flats, and will be carried through to the desert. Another road is being built up Santa Anita Cañon, and there is talk of connecting it with the Mount Wilson road by way of Winters Creek. It is only a question of time before there will be a road down the West Fork of the San Gabriel and another from the Acton side of the range. All these changes mark the passing of the wild "back country," but the national forests of southern California are, for the most part, of greater value to the public as recreational areas than for any utilitarian purpose, a fact which the Forest Service appears to recognize and to act on, as exemplified by the increased facilities for camping which are being provided along the course of these new roads. It is a satisfaction to note that these developments are being closely watched by those in charge of the interests of the Southern California Chapter, which stands ready, as always, to co-operate with the Forest Service whenever such co-operation is desired.

J. DE C. MORTIMER

MEMORIALS



JOACHIM HENRY SENGER

The year 1926 has seen the passing of the last of the four men who were most actively connected with the formation of the Sierra Club. Though the last of the four original founders—Henry Senger, Warren Olney, John Muir, and William Armes—to pass from amongst us, it was Henry Senger who made the first definite move toward the organization of a mountain club in California. As early as 1886 he conceived the idea of establishing a library of mountaineering literature in Yosemite Valley, and of using this as a headquarters of mountain exploration. Later the idea expanded, and by 1890 the formation of a Sierra Club was pretty generally demanded by those who were actively engaged in pushing more deeply each year into the then practically undescribed regions of the High Sierra. It was he who in 1892 brought together the leaders in the movement, and arranged the meeting of June 4th, at which the articles of incorporation of the Sierra Club were drawn up and signed. From that date until 1898 Dr. Senger was a director of the club, and was its treasurer during the year 1893-1894, and from 1896 to 1898.

Joachim Henry Senger was a native of Prussia, born in 1848. He came to the University of California as an instructor in German after taking his A. B. degree in 1882. In 1888 he received his degree of Doctor of Philosophy, and the same year was made instructor in German and Greek. He took a very active part in the affairs of the University and endeared himself in the hearts of thousands of students who attended his classes. He died at his home in Berkeley on April 13, 1926, at the age of seventy-eight years.

Dr. Senger was known as one of the most able philologists of the country, and contributed many articles to the *Journal of the Philological Association*. Besides being an ardent lover of nature, particularly of the mountains, he was also devoted to music and art.

J. N. LE CONTE

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WILBUR FISKE MCCLURE

Wilbur Fiske McClure, Member of the American Society of Civil Engineers, State Engineer of California, and Director of the State Department of Public Works, died June 22, 1926, aged seventy years. Not only has the State of California lost one of its ablest public officials, but the Sierra Club has lost a staunch friend and co-worker.

Mr. McClure was a native of Ohio. Although educated for the teaching profession, he took up the study of engineering and turned to that profession at an early age. His early engineering work, all of which was connected with railroad construction, finally brought him to California, where he served for six years as Chief Engineer of the Los Angeles Terminal Railway System

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PLATE CXXVII.



JOACHIM HENRY SENGER
1848-1926



WILBUR FISKE McCLURE
1856-1926

(now the Union Pacific in California). He later supervised the removal of Shag, Arch, and Blossom rocks, in San Francisco Bay, to a depth of thirty feet. He served the city of Berkeley from 1905 to 1911, first as City Engineer, and later as Commissioner of Public Works. In 1912 he was appointed State Engineer, a position which he held through three successive gubernatorial administrations, a service exceeding fourteen years. After 1921 there was added to his duties the directorship of the State Department of Public Works. Under his supervision a policy of regulation of California Irrigation Districts was instituted which has resulted in one of the largest and the most successful irrigation developments ever accomplished. This development may be said to include practically the entire irrigated area of California.

One of his outstanding services was rendered as California member of the Colorado River Commission, organized under the chairmanship of Secretary of Commerce Herbert Hoover, and which drafted the compact that was signed at Santa Fe, New Mexico, on November 24, 1922. In a recent letter, Secretary Hoover, in speaking of Mr. McClure, said that his "unceasing devotion in the interests of the State of California was accompanied by a breadth of vision as to national interests which marked his character at all times," and "his engineering knowledge and familiarity with all the facts bearing on the most difficult questions and his fine personality made him one of the most important members of the commission."

Mr. McClure was a member of the Sierra Club's outing party of 1908. During this outing he gained a fuller understanding of the club's purposes and a deep appreciation of the service rendered by it. When the first appropriation was made, in 1915, by the State of California for the construction of the John Muir Trail he, as State Engineer, was charged with the location of the trail and with the supervision of its construction. Before starting this work he sought the advice of the officers of the Sierra Club, and, with them, after personally going over the ground, selected the route and perfected plans for actual construction by co-operation with the U. S. Forest Service, which service has contributed much valuable supervision. Indeed, nowhere has so much value been secured for like expenditure in trail construction. His plans for the handling of the original construction have governed the expenditure of subsequent appropriations for this project. McClure Meadow, a delightful spot on Evolution Creek and on the John Muir Trail, appropriately bears the name of this splendid public servant who so efficiently served the State of California to the hour of his passing.

WALTER L. HUBER

LE ROY JEFFERS

Cut off in the midst of an active and useful life, Le Roy Jeffers was killed in an airplane accident at Wawona, California, on July 25, 1926. Desiring to observe the Sierra from a greater height than could be attained on foot, he had accompanied Sterling Bunnell, M. D., who piloted the craft, on a flight from Redwood City. It was the intention to alight at Wawona, but while maneuvering for a landing the plane went into a nose-dive and crashed. When extricated

from the wreckage, Jeffers was dead and Dr. Bunnell was unconscious and badly injured.

Le Roy Jeffers was born at Ipswich, Massachusetts, August 25, 1878. While he was still very young the family moved to Swampscott. There he spent his boyhood and developed his love of nature. After experimenting with various vocations, he became manager for the Booklovers Libraries in 1901, and in 1905 joined the staff of the New York Public Library, where he remained for the rest of his life. He was an ardent worker in his profession, doing much more than the routine work of his position.

Jeffers' heart was always in the mountains, and he lost no opportunity of visiting them. His range of travel was remarkable considering the short time and the means at his disposal. On several occasions he joined the Sierra Club in its outings and climbed a number of the principal peaks in the Sierra Nevada. He also climbed extensively in the Cascades, the Colorado Rockies, the Canadian Rockies, and the Selkirks, and was, of course, thoroughly familiar with the Appalachian ranges. He made two notable climbs on Mount Moran in the Teton range, Wyoming, in 1919 and 1922.

The Bureau of Associated Mountaineering Clubs of North America was organized by Jeffers in 1916, and for ten years was conducted under his leadership for the purpose of unifying the activities of the member organizations in promoting matters of common interest.

As secretary of this bureau and as librarian of the American Alpine Club he was especially helpful in distributing knowledge of mountaineering publications and in making a valuable collection of books and photographs. This collection, belonging to the American Alpine Club, is deposited with the New York Public Library.

Among the clubs and societies to which Jeffers belonged were the Sierra Club, Appalachian Mountain Club, Alpine Club of Canada, American Alpine Club, Alpine Club (London), French Alpine Club, Explorers Club, Authors Club, Royal Geographical Society. He was married in 1908 to Rosa E. Miller, who survives him.

Jeffers published in newspapers, magazines, and other periodicals a great many short articles on mountaineering, travel, western and foreign scenery, and professional library topics. His book reviews were especially noteworthy. Some of his best work, collected and rewritten, was published in 1922 under the title of "The Call of the Mountains," a beautifully illustrated book that deserves a place in every mountaineering library. In this book are happily preserved the qualities of earnestness, enthusiasm, devotion to ideals, and of religious fervor, that translated this gentle librarian into a brave spirit exulting in the grandeur and sublimity of lofty mountains.

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WILLIAM B. WALLACE

Judge William B. Wallace, of Visalia, died May 2, 1926, at the age of seventy-seven years. As a young man he was among the best-known mountaineers and explorers of the southern portion of the Sierra Nevada. He was

born in Missouri, May 1, 1849, and the same year his father, Dr. W. P. Wallace, brought his family over the Santa Fe trail to California and to the mines at Placerville.

Dr. Wallace died in 1850, and his widow died in 1858, leaving the boy an orphan when nine years of age. At eighteen he began to teach school in Sacramento, and afterwards taught in Eldorado and Amador counties. He came to Tulare County in the summer of 1875 on a visit and the following year returned to stay.

There he continued to teach school and at the same time read law, until in 1881 he was appointed Justice of the Peace in Visalia. He was admitted to practice law in the Superior Court in 1882, and in 1883 was admitted to practice in the State Supreme Court. He served as Justice until 1885, when he became District Attorney. After serving one term he practiced law until 1899, when he entered upon his duties as Judge of the Superior Court, which position he held continuously for twenty-seven years to the time of his death.

When a young man Judge Wallace spent twenty consecutive summers in the mountains of Tulare County, usually with companions, but at times alone. He climbed Mount Whitney and other high peaks, traversed wild cañons, discovered passes, blazed trails, traveled through trackless forests, and named several streams, lakes, meadows, and mountains.

In 1881 he accompanied Captain J. W. A. Wright and the Reverend F. H. Wales on a trip to Mount Whitney. There they met members of Professor Langley's astronomical party and spent a night on the summit with some of them.

About 1890, during a season of low water, Judge Wallace left Cedar Grove in Kings River Cañon, with D. K. Zumwalt and John R. Zumwalt, to follow the narrow cañon to the foothills. They waded in deep water much of the way and at times, to avoid dangerous falls and cataracts, scaled almost perpendicular cliffs several hundred feet high, carrying their supplies with them. They succeeded in making their way through, but Judge Wallace, who started on this trip at the beginning of his vacation after several months without exercise, never recovered from the hardships endured, and soon after became quite lame. He rode a tricycle in town and had difficulty in walking even with a cane.

His love for the Sierra never left him, however, and he frequently went to the mountain resorts in the summer-time to be with the crags and cañons and forests which were daily in his thoughts.

In 1902, with his son Bruce, he joined a camping party and rode to Mount Whitney, camped at the base of the last ascent, and climbed again to the summit, going a few steps at a time with the aid of his cane.

A short time before his death he was thinking of the mountain forests and expressed regret that he would not be able to take another vacation there.

In 1925 the Sierra Club proposed that a lake northwest of Mount Whitney be named for Judge Wallace and that the creek flowing from it to the Kern River be called Wallace Creek. These names were approved by the United States Geographic Board.

GEORGE W. STEWART

ALFRED CRAVEN

Alfred Craven, one time a member of the California State Geological Survey, died September 30, 1926, at his home at Pleasantville, New York, aged eighty years. He was born at Bound Brook, New Jersey, September 16, 1846.

Mr. Craven was one of the world's foremost engineers; for fifteen years he was engaged in constructing the Croton Aqueduct for New York City, and was connected with the construction of the New York subway system from its inception, in 1900, rising to the position of Chief Engineer of the Rapid Transit Commission in 1911. He retired from active work in 1920.

It is in Alfred Craven's earlier work that Californians will find a special interest. Carrying out a family tradition, he attended the United States Naval Academy, from which he was graduated in 1867. After a brief career in the Navy he became interested in the work being carried on by Professor Josiah Dwight Whitney through the California State Geological Survey. In the summer of 1870 he accompanied Charles F. Hoffmann and W. A. Goodyear, of the survey, on the first ascent of the prominent peak that stands on the present northern boundary of Yosemite National Park, known since that time as Tower Peak.

Craven resigned from the Navy in 1871 and joined the California State Geological Survey. He was married at Oakland, California, in 1871, to Nina Florence Browne, daughter of Hon. John Ross Browne and a sister of Mrs. Charles F. Hoffmann. Upon the termination of the survey, in 1874, Craven joined his brothers-in-law, Ross E. Browne and Charles F. Hoffmann, in the practice of engineering. While thus engaged he was connected with the development of the Comstock Lode at Virginia City, Nevada, where he had a part in designing the Sutro Tunnel. He moved to New York in 1884.

Shortly before his death, Mr. Craven dictated his recollections of the ascent of Tower Peak. Passages from this memorandum are given elsewhere in this issue.

BOOK REVIEWS



PLACE NAMES OF THE HIGH SIERRA* Mr. Farquhar's keen interest in the High Sierra and his painstaking effort in tracing and verifying all available historical information have made this remarkable work possible.

The gathering of the wealth of material stored between the covers of this volume has required several years. Much diligence has been displayed; yet, for the author, this can hardly be classed as labor and certainly not as an onerous task, because of his enthusiasm for and his love of the subject.

Some of the material included was first presented in the *SIERRA CLUB BULLETIN*, where it appeared in three installments, in 1923, 1924, and 1925. With the publication of this material new sources of information developed, and thus the author's efforts have finally produced a work much more comprehensive than he had originally planned, or probably even believed possible. There is much satisfaction in having this valuable material published, and thus preserved for all time, before the sources are no longer available, as is unfortunately already true in many instances.

To say that the origin and meaning of more than five hundred place names are accurately enumerated would in no way describe the scope of this book. It is, in fact, practically a history of the High Sierra, so full are the notes and descriptions. A fund of valuable historical and biographical data not elsewhere available may here be found arranged for convenient and ready reference. A list of source maps and a list of the publications of the Sierra Club are also included.

The volume is appropriately dedicated to Joseph N. Le Conte, whose name is linked for all time with the exploration of the High Sierra.

WALTER L. HUBER

THE EPIC OF MOUNT EVEREST † The author of this really remarkable book, Sir Francis Younghusband, was the first chairman of the Mount Everest Committee of the Royal Geographic Society and of the Alpine Club, and it was in behalf of the Mount Everest Committee that he wrote this volume. All or practically all of the facts included in the book have been, as is noted in the preface, previously published in three separate volumes, the descriptions being written by those who actually took part in the expedition. The present volume is the condensed description of the three expeditions, and is not only based on the previous publications, but follows the exact narrative of those publications as nearly as may be with due consideration to brevity and connectiveness.

* *Place Names of the High Sierra*. By FRANCIS P. FARQUHAR. The Sierra Club. 1926. 128 pages. Price, \$2.00. (A few copies remain of a special edition printed on all-rag paper and bound in cloth, price \$5.00.)

† *The Epic of Mount Everest*. By SIR FRANCIS YOUNGHUSBAND. Longmans, Green & Company, New York. 1926. 319 pages. Illustrated. Price, \$3.00.

The title, *The Epic of Mount Everest*, has indeed been well chosen. The author gathered together in a most interesting and organic way the story of the personal experiences of the members of the expedition and has thrown them into a truly epic form. He has done honor to the great spirits about whom he writes, and has stamped their achievements into a work truly heroic. In language simple and direct he relates the great deeds of great men almost without flourish or adornment of any kind. He has written what must be an enduring record for all time of the courageous attempts on this last unconquered giant, Mount Everest.

Sufficient space is allowed for describing the approach to the mountain and the local coloring to put one in close sympathy with the general conditions under which the expedition was made. In a brief chapter the land and the people of Tibet, including a glimpse into the monastic life of that mysterious people, are brought before the reader. But such considerations are merely incident and introductory of the great epic.

The real business of the expedition is approached rapidly and handled with such directness and force, with such attention to detail, and still with such breadth of vision, that it is hard to see how room has been left for improvement. During the narrative the reader becomes a member of the party and lives in intimate touch with every member of it, sharing their plans, their hardships, their failures, their successes, their hopes and ambitions, and, most of all, their great courage and sportsmanship. Each member of the party is given his due share of praise and consideration by the author, and the justness and insight with which the characters are drawn are masterly. Even the porters are given their due consideration and due praise.

The three expeditions might in fact be looked upon as the three acts of a great drama. Surely no drama ever had a more heroic setting, a more tragic approach to its final catastrophe; and the interlogue, as the Bishop of Chester might justly be called, leaves nothing to be wished for as a eulogy and a benediction of the life and character of such men as Mallory, Irvine, Odell, and those other splendid fellows.

You close the book with devout thanks to God that you are a member of the human race that has given birth to such splendid men. No library or mountaineering collection of books that portrays the heroic deeds of men will be complete without including this volume, *The Epic of Mount Everest*.

The illustrations from original photographs are frequent and really marvelous, giving one an adequate impression of the scenery of Tibet and of the mountain itself.

GEORGE C. THOMPSON

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WISDOM OF THE WOODS* This volume is one of the Woodcraft Series, and it would be hard to imagine any volume of its size more delightful and entrancing for the average boy than this. The very headings of the chapters as you run through the book are a delight to the soul of a boy or the man who loves the out-of-doors; for instance, "How to Make a Bow,"

* *Wisdom of the Woods*. By DAN BEARD, National Scout Commissioner, B. S. A. J. P. Lippincott, Philadelphia and Boston. 1926. 150 pages. Price, \$2.50.

"How to Make an Arrow," "How to Chip Flint for Arrow-Heads," "'ware of Forest Fires," "What to Do in Time of Windfalls," "Don'ts for Thunderstorms," "Poisonous Plants and Venomous Serpents," "General Hiking and Overnight Hiking," "How to Make Rope, Twine, Racks, Bridges, and Noggins out of Material Found in the Woods." Indeed, the whole volume is charming not only for the story which it tells, but in its illustrations.

All Scout masters and Boy Scouts owe Scout Commissioner Beard a deep debt of gratitude. He knows the woods. He knows what reaches the heart of a boy. He knows how to tell a story of alluring features that appeals so deeply to the average youngster. He goes into such details and uses such illustrations for all points covered that anyone could go straight. Possibly, the most interesting chapter of the whole book is the one on "How to Make Arrow-Heads," but that is merely a matter of personal choice. It would be hard to find anything more interesting or valuable than the chapter "'ware of the Forest Fires," etc.

Scout campers have a special chapter all to themselves, entitled "Scout Campers," and everyone would do well to read this volume if for no other reason than to get these very practical suggestions from real headquarters. As a gift book for boys it would, in my judgment, stand very high.

GEORGE C. THOMPSON

THE GENTLE ART OF TRAMPING* Stephen Graham, the author of this volume, is no common trumper, but of an unusual type. The object for which he writes is not especially to instruct, but primarily to entertain. If you are expecting his treatise to be on how to tramp in Russia, or England, or America, or any other part of the world, you will be mistaken. He has been everywhere, and so the ideas set forth in *The Gentle Art of Tramping* are such as might be attributed to a cosmopolitan, one who knows the open road of the world. He is an Englishman by birth and training, and he goes his way with delightful chat about everything over the surface of the earth.

His chapters do not necessarily mean what the chapter headings would indicate; for instance, the one on tobacco. He who knows the high mountains and who has fished in the dashing streams of the Sierras would not expect to hear a mountaineer decry the use of the filthy weed, but Mr. Graham does not know the joy of smoking. He does not care for it. It interferes with the glow of the sunset and the beauty of the hills. Still his discussion is amusing. He gives gentle and delightful advice about many things, such as the art of idleness, the dip, marching song, boots, knapsacks, winter shelter, and, most amusing of all, the chapter on drying out. The chapter on books is pleasant and amusing, but the heart of the entire volume is the chapter on "The Artist's Notebook." Here Mr. Graham has given us a beautiful discussion of those problems that throng upon the mind out in the great open, a delightful philosophy of life, the delightful art of thinking right about life, the gentle art, in a word, of being a sympathetic and intimate part of all things that live.

* *The Gentle Art of Tramping*. By STEPHEN GRAHAM. D. Appleton & Company, New York. 1926. Price, \$2.50.

As a whole, the volume is exactly what you would expect from Stephen Graham—charming, entertaining, a storehouse of beautiful and cultural thoughts along the open road.

GEORGE C. THOMPSON

THE RIDDLE OF THE TSANG-PO GORGES* Under this title Captain Kingdon Ward has written what certainly must be to the skilled botanist and to the layman interested either in physical geography or in botany an intensely interesting and instructive volume. The proper title of the book should be "A Botanical Journey from Darjeeling into the Land of Tibet, Up the Tsang-Po River to the Tsang-Po Gorges and Return." In the author's own words, the journey was undertaken for the purpose "of collecting plants in a region which was even a greater mystery from the botanists' point of view than from the geographers". We intended to make a collection of dried plants and to collect seeds of the most beautiful and suitable garden plants and so introduce them into Britain." With this modest object in view, the author has given us a new insight into the lands, the people, the climate, the rivers, mountains, and natural scenery of eastern Tibet and the Himalaya that will undoubtedly take a permanent place among the interesting and scientific works of that unfrequented and little-understood land.

The title, *The Riddle of the Tsang-Po Gorges*, has, however, real meaning. In this expedition following up the Tsang-Po, the party explored sections in the upper regions of the river which have never been visited, and both the illustrations and the text lead one into almost frantic despair not to be able to follow in the author's footsteps.

As an almost necessary adjunct to such a volume there is included a map showing the plane table and compass traverse of the region, which is excellently done and which adds immensely to one's pleasure and interest in reading the book.

GEORGE C. THOMPSON

THE TRAIL OF LEWIS AND CLARK† Olin D. Wheeler, a member of the Minnesota Historical Society, evidently made a hobby of studying and collecting all available data and records bearing on the Lewis and Clark Expedition. His work for the Northern Pacific Railway enabled him to retrace much of the route followed by these explorers and he investigated many of the records and landmarks involved. Thus his account of the expedition has much of the tone and color of a first-hand report.

In addition to the frequent use of direct quotations from diaries of various members of the party, and edited condensations of these and other records, Mr. Wheeler has sought out and added much original matter, evidently with scrupulous care as to accuracy and a sympathetic treatment of the subject. It is this elaborateness of detail that extends the work to two volumes.

* *The Riddle of the Tsang-Po Gorges*. By Captain F. KINGDON WARD. Longmans, Green & Company, New York. 1926. Price, \$7.50.

† *The Trail of Lewis and Clark*. By OLIN D. WHEELER. New edition: 1926. With introduction by F. S. DELLENBAUGH. G. P. Putnam's Sons, New York. Two volumes. 797 pages. 200 illustrations. Price, \$10.00.



WILLIAM B. WALLACE
1849-1926



There are charming bits of descriptive writing, thrilling narratives of dangers and hardships, detailed accounts of early Indian customs, and repeated references to Sacagawea, stressing the invaluable service this little "bird-woman" rendered the expedition.

The first edition was published in 1904, but the introduction to the 1926 edition by F. S. Dellenbaugh is a valuable addition, being in reality a review with editorial comment on the work as a whole. To read these books is to gain a new and intimate vision of the difficulties and the accomplishments of Lewis and Clark and their intrepid followers.

NATHAN A. BOWERS

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RUN, SHEEP, RUN* This is the story of a lonely sheep-herder's life with his flock in the mountains during one season. The major characters besides the sheep-herder are an old prospector and his daughter. The story is tremendously dramatic, with a grip upon detail that is somewhat extraordinary, particularly the sordid, unpleasant, and harrowing details of a sheep-herder's life.

The author knows the wildness and beauty of the mountains, and his descriptions are at times of surpassing charm. He creates for his characters an atmosphere that is convincing throughout; in fact, the sense of reality is borne in upon one in a masterly way throughout the entire narrative.

The author knows the heart of a sheep-herder. To use the modern phrase, his psychology is excellent. He has interwoven into the tragedy the loneliness of the sheep-herder's life, the double tragedy of the old prospector and his daughter, and the logical working out of the climax is done with a dramatic skill that is both tragic and fearful.

EDNA THOMPSON

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WHITE WATERS AND BLACK† The story of a scientific exploration to explore and collect biological specimens over an entirely new territory in the jungles of the Amazon, an expedition which was saved from utter failure and made a remarkable record of achievement by the indomitable courage and resourcefulness of its self-assumed leader, is told in *White Waters and Black*, by Gordon MacCreagh.

The party consisted largely of persons selected for their scientific knowledge, without regard for physical ability or experience to withstand the hardships involved in penetrating unknown tropical jungles. Crossing the Andes over an 18,000-foot pass proved a cruel test both for the inexperienced scientists and for the overburdened mules. The party reached the south tributary of the Amazon and descended to its junction with the north fork, the latter for some unexplained reason being so dark it was called the Black Waters in contrast to the cataract-whipped White Waters of the south tributary.

The difficulties of the journey caused the crippled scientists to leave one by

* *Run, Sheep, Run.* By THAMES WILLIAMSON. Small, Maynard & Company, Boston. 1925. 277 pages. Price, \$2.50.

† *White Waters and Black.* By GORDON MACCREAGH. The Century Company. 1926. 400 pages. Price, \$4.00.

one, as opportunity arose to secure transportation down the great river to civilization.

The fascinating portion of the story commences when the author and two well-tested companions venture up the Black Waters, penetrating a land where lived wild men and dwarfs.

RODNEY L. GLISAN

WITH SEAPLANE AND
SLEDGE IN THE
ARCTIC*

When Dr. Kane published in 1856 his account of the exploration of the north in search of traces of the expedition under Sir John Franklin, he established once for all the standard by which books of arctic explorations will be judged. *With Seaplane and Sledge in the Arctic* does not equal Kane's work in human interest, in observations, in thrilling experiences, in dramatic quality, or in charm of literary presentation, but it does surpass it in appendices, indices, and well-ordered arrangement.

The author, George Binney, is a young Oxford man who obtained much practical knowledge in organizing arctic expeditions through his experiences in the 1921 Oxford Spitzbergen Expedition and the 1923 Merton College Arctic Expedition.

Binney undertook the 1924 Oxford Arctic Expedition with the purpose of exploration and of throwing some "light on the practical value of aircraft for an expedition which is working in polar regions."

Vivid accounts of the journeys of the northern and central sledging parties over vast white spaces, the portion devoted to the "First Crossing of the North-East Land" by the author and three comrades, and Binney's description of the hazards encountered by the airmen while photographing and charting the coast-line are the most interesting sections.

The youth and enthusiasm of the members of the expedition are contagious, and the whole account evidences the light heart and true courage of British sportsmanship.

WELLES TEEPLE MILLER

A BOY'S LIFE
IN MESA VERDE†

Boys will be boys, but few boys have the chance to be boys in the midst of such fascinating surroundings as *Deric in Mesa Verde*. Deric Nusbaum's father is superintendent of Mesa Verde National Park, in the southwestern corner of Colorado; moreover, he is a distinguished archeologist. Deric's mother brings many talents to the endowment of her lively and alert-minded son. Deric has taken to art and archeology like a duck to water and has made the most of his exceptional opportunities.

At first it seems incredible that a thirteen-year-old boy could have written such an excellent book; yet none but a boy of that age could have reproduced so faithfully the enthusiasm of boyhood. He goes exploring with men, horses,

* *With Seaplane and Sledge in the Arctic*. By GEORGE BINNEY. George Doran Company. 1926. 280 pages. Price, \$6.00.

† *Deric in Mesa Verde*. By DERIC NUSBAUM. G. P. Putnam's Sons, New York. 1926. 166 pages, illustrated. Price, \$1.75.

dogs; he learns how to make Indian weapons; he uncovers rare finds in pottery and implements; he coasts in winter upon the snowy mesa slopes; he makes friends of the Indians; he climbs among the ancient cliff-dwellings, and dreams dreams.

F. P. F.

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THE SEVEN CITIES OF CIBOLA* From whatever hemisphere they may come, all old stories have a family resemblance to one another. From every old wives' tale, whether told under arctic lights or in the shadow of cactuses, the same ingenious and misleading moral may be drawn that all blessings and rewards come to the good, the strong, and the beautiful. The stories collected under the title, *The Seven Cities of Cibola*, told by Zuñi Indians to Aileen Nusbaum, waft us again into that familiar, magically logical atmosphere we breathed so naturally as children. It is to be hoped that the modern little boy still reads with eagerness about beauty in distress and the death of the wicked, of animals, and of godlike rescuing princes; if so, this book will be acceptable fuel to the fire of magic lighted in the hearts of children numberless aeons ago when the first old fogey uttered in the hearing of a child the prehistoric equivalent of the formula "Once upon a time."

Mrs. Nusbaum tells the stories without much distinction, but with charm; all of them, while striking the romantically familiar note, have an Indian individuality that every not too prosaic child will enjoy, and the illustrations are pleasantly primitive and explanatory.

S. B.

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GLACIER NATIONAL PARK† Miss Agnes C. Laut's *Enchanted Trails of Glacier Park* is written in a lively style, entertaining, full of vivid pictures of mountain, lake, and stream; yet, with all its virtues, it is unmistakably the work of a transient visitor. It is true that few transients ever see so much or comprehend so much as Miss Laut did during her brief sojourn, for few have the wealth of experience that she has gathered in other parts of the northern wilderness.

One may learn much about Glacier National Park from reading Miss Laut's book. She has told reliably a large part of the story of what may be called the tourist part of the park. She stays by the beaten path, however, both in actualities of travel and in her point of view. One feels that if she had really explored the wilder parts of the park and had revisited them once or twice she might have produced the yet unwritten classic on this splendid region of the Montana Rockies. A little more knowledge of Glacier Park would have made it unnecessary to fill out the book with extraneous matter. In short, it is an excellent guide-book for the hotel tourist (who is, by the way, in the ratio of 9 to 1); but for the mountaineer, the camper, the adventurer—well, it can be read with enjoyment after the return home.

F. P. F.

* *The Seven Cities of Cibola*. By AILEEN NUSBAUM. G. P. Putnam's Sons, New York. 1926. 167 pages. Price, \$2.00.

† *Enchanted Trails of Glacier Park*. By AGNES C. LAUT. Robert McBride & Company, New York. 1926. 251 pages, illustrated. Price, \$3.00.

THE GLAMOUR OF BRITISH COLUMBIA* This book is a description and narrative of the life and the wonders of northern British Columbia—as yet inaccessible to any but the hardiest of frontiersmen and as a result practically unknown to the outside world. The author has spent a great deal of time in this vast wonderland, and has come to love it and consider it as probably the last frontier against the encroachments of civilization.

To me, the outstanding chapter in the book is the one entitled "The Romance of the Yukon Telegraph Trail." There is a lonely two-hundred-mile stretch between Hazelton and Dawson, along which nine cabins are built at intervals, each being maintained by two men who are under contract to remain for three years without leave. Once a year a pack-train visits each of these cabins and leaves supplies for the ensuing year; other than that these men see only one another and an occasional Indian or trapper who perchance might wander by.

The author's wit is everywhere apparent as she recounts the tales of the people or describes their doings. The following characterization is an illustration: "And with him, like a black and faithful shadow, was Darkie Dave, the colored man. Dave Wiggins, to give his name in full, came from heaven at the tail end of a pack-train and will most certainly go back at the head of one, knowing no other way, though he will assure you he was born at New Westminster, down near Vancouver, on the Fraser River."

JONATHAN TIBBITS

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LIGHTS AND SHADOWS OF YOSEMITE† Mrs. Taylor has done well what many others before have attempted with varying degrees of success: she has provided the latest and most up-to-date tourist guide and souvenir of Yosemite. *Lights and Shadows of Yosemite* is just what the visitor is seeking when he asks for something that will tell him about the wonders of the valley, and especially the Indians, in an interesting way—a book that he can take back to the folks at home. It has rather more charm than is usually found, and the illustrations are fresh and well selected.

F. P. F.

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TREES AND SHRUBS OF CALIFORNIA‡ After an evening spent with Mr. Saunders' latest contribution to California's outdoor literature, one will step into one's garden with a feeling that real friendship has succeeded a mere acquaintance with his trees and shrubs.

It is interesting to know whence a new acquaintance came—whether from east or south or over the seas. So indeed with growing things, the author taking us back to the ancestral homes of many of our now naturalized citizens

* *The Glamour of British Columbia*. By H. GLYNN-WARD. The Century Company. 300 pages, illustrated. Price, \$3.00.

† *Lights and Shadows of Yosemite*. By KATHERINE AMES TAYLOR. H. S. Crocker Company, San Francisco. 1926. 87 pages. Price, \$1.50.

‡ *Trees and Shrubs of California*. By CHARLES FRANCIS SAUNDERS. Robert N. McBride & Company, New York. 1926. Price, \$3.00.

of the greensward. Here, too, we are relieved of the necessity of translating the usual botanical description into every-day non-technical prose. We might term the work an historical horticultural narrative rather than a text-book.

Generously and nicely illustrated and altogether attractive, we predict for this volume a lengthy sojourn on the library table before being consigned to space on the shelves.

HOMER T. MILLER

THE MOUNTAINS Mountains of alpine character present an appearance that of Youth* is far removed from the more commonly known aspect of

lesser heights. Snow-clad and ice-bound mountain fastnesses are inviting and alluring, and can be just as hospitable on a winter day as in summer. The traveler who goes into wintry solitudes, finds them clean of the trappings of men. Tracks have disappeared, and all seems new and virgin. The crackle of the camp-fire, the incense of the burning wood, give one deeper comfort and cheer. The starry heavens appear closer, and the stillness is deeper. Old familiar views are altogether different, and every turn of the trail affords new delight.

Arnold Lunn has lived among the mountains. He knows them in their winter garb and in their summer gaiety. An expert with the ski, he has the ability to travel comfortably in the upper world at any time of the year.

In *The Mountains of Youth* he tells of his travels in the Alps, in Great Britain, and in Norway, during many years and in all seasons. The book is well written, non-technical, and interesting to the general reader as well as to the mountaineer. Incidents follow in quick succession, and are told with fine regard for dramatic quality. Many of the passages are beautiful and will linger in the memory. The illustrations are good, and are done in blue and white. To read the book is to journey with the author into "The Mountains of Youth."

THEOPHIL LEONARD FRITZEN

AN OVERLAND The story of the Overland Trail has been woven into so many JOURNAL† romances both in print and on the screen that we may have

become forgetful of the stern realities of the emigrants' struggles. Let us, therefore, once in a while look behind the romantic shadows and try to march along with a real wagon-train. One can almost do so by reading Lorenzo Sawyer's account of his journey across the plains, the mountains, and the deserts in 1850. Sawyer was a young man of education and discerning mind—he was afterwards Chief Justice of the Supreme Court of California—and his journal is far more varied and interesting than most records of such journeys. For many years Sawyer's narrative was hidden in an obscure newspaper file, but now it happily comes to light in an attractive form ably edited by Edward Eberstadt. The reader will find the footnotes an alluring guide to further acquaintance with the history of the Overland route. F. P. F.

* *The Mountains of Youth*. By ARNOLD LUNN. Oxford University Press, American Branch, New York. 1925. 192 pages, 20 illustrations. Price, \$4.25.

† *Way Sketches, Containing Incidents of Travel Across the Plains from St. Joseph to California in 1850*. By LORENZO SAWYER. Edward Eberstadt, New York. 1926. 125 pages. Price, \$5.00.

THE KARA-KORUM GLACIERS* The Visser expedition of 1925 was undertaken to explore the headwaters of the Hunza, its affluents and glaciers.

These waters, eventually flowing into the Indus River, originate where the ranges of the Hindu Kush and the Karakoram meet. (The Survey of India uses the form "Karakoram.") The author and her husband succeeded in covering a good deal of ground in one season. The book has many fine illustrations from photographs taken by the expedition.

Some of the statements in the book are at variance with deductions by accepted authorities. Opinions about such a subject must be formed cautiously and be held in a state of flux. It requires a thorough study and digest of the extensive literature bearing on the vast Asiatic mountain ranges, and their topography, geography, and geology, before one is competent to co-ordinate facts gathered even by an expedition in which one has a part.

The scientific results of their expedition are not included in the narrative. The authors have left such matters for determination by experts. As a story of a summer's adventure the book is enjoyable. The events of travel are told effectively and well.

THEOPHIL LEONARD FRITZEN

• •

JOHN COLTER† No national Park has been the subject of more song and story and accurate historical and scientific narrative than the Yellowstone. This literature has recently been enriched by a biography of John Colter, written by Mr. Stallo Vinton after a most painstaking and thorough research of all available sources.

Colter discovered the upper Yellowstone region with its strange phenomena in 1807. He had entered the fur trade after being a member of the famous expedition of Lewis and Clark. Considering the very great scarcity of material regarding Colter, and the fact that he left no personal word of his exploits, not even of the most meager sort, Mr. Vinton has constructed a record of his life in the wilderness (1803-1810) that is not only intensely interesting but remarkably complete as to his principal and important adventures.

The chapter on Colter's route through the Yellowstone region, which includes an analysis of Clark's map, is the most complete narrative of the discovery of the park territory that has yet appeared. Mr. Vinton's conclusions regarding Colter's route and discoveries are convincing, and unless some document on the subject not now known to exist is later brought to light, this chapter is likely to remain for all time as the authoritative interpretation of this period in Yellowstone history.

HORACE M. ALBRIGHT

* *Among the Kara-Korum Glaciers in 1925.* By JENNY VISSER-HOORT and PH. C. VISSER. Edward Arnold & Co., London. 1926. 300 pages, 25 illustrations, 2 maps. Price, \$7.50.

† *John Colter, Discoverer of Yellowstone Park.* By STALLO VINTON. Edward Eberstadt, New York. 1926. 114 pages. 530 copies, of which 30 are on large paper. Price, \$3.00 (regular edition).

MISCELLANEOUS NOTES

THE NAMING OF MOUNT TYNDALL

[*The following letter from Professor William H. Brewer has been made available through the courtesy of his son, Mr. Arthur Brewer, of Bridgeport, Connecticut, who was a member of the Appalachian Mountain Club party that visited the Sierra last summer. Professor Brewer was the chief of the field parties that made a survey of the State of California under Professor Josiah Dwight Whitney in the '60s. Besides being a valuable contribution to mountaineering literature in its comments upon Professor Tyndall, this letter is an interesting supplement to the chapters on the climb of Mount Tyndall in Clarence King's Mountaineering in the Sierra Nevada.]*

Sheffield Scientific School of Yale College

My Dear Prof. Mayer— New Haven, Conn., Jan. 11th, 1873

Yours is received, with the kind invitation to take part in a dinner in honor of Professor Tyndall, whose pleasant acquaintance I have but recently made. Yet he was no stranger to me, for the name has long been associated with most interesting memories. I infer that this dinner is given in honor of the *physicist*,—pardon me if I pay my tribute to the Mountaineer and lover of Nature. Nor will it be the first time. Let me tell you, my dear friend, a little story about it.

In 1864 I had charge of a little party exploring the group of highest peaks of the Sierra Nevada in California, the highest, in fact, in the United States. For several years I had been familiar with its distant aspects, as seen from nearly every side. The group was entirely unknown however, so far as any scientific knowledge of its height, topography or interior scenery was concerned. One year we had been kept from it by floods, and another year hostile Indians had turned us from its flanks. But in '64 we pushed back into the group. From a camp at 10,000 feet, two of us reached what at first seemed to be the crest,* but to find the real summit was nearly five miles beyond, and much higher. A cañon 3000 or 4000 feet deep separated us from the coveted spot; vertical walls of granite stopped us there, and far beneath were frozen lakes of vivid blue. We turned back dispirited.

That night at the camp-fire (where our only tent was the deep blue-black vault of sky) the intrepid Clarence King earnestly begged to try with Cotter to reach the crest. I hesitated, for we were short of provisions and far from supplies. Moreover, I had seen the difficulties and he had not; but he had read Tyndall's *Glaciers of the Alps* and thought nothing was impossible. Permission was at length given, but this meant partial starvation to those of us who remained that they might have the necessary food; and to those who went

* This was Mount Brewer, named for Professor Brewer by his party on this occasion.

it meant exposure, sleeping at 11,000 or 12,000 feet on the rocks, scaling untried precipices and meeting unknown difficulties. I feared for their safety, as I knew the dangers they must face.

Early dawn of July 4th found us on the way with barometer and other instruments, six days' provisions, and their blankets. We carried their packs up to 13,000 feet, pointed out the way they must take, and after a hearty shake of the hand and a "God be with you," we saw them descend into the cañon and disappear.

The evening of the fifth day saw their return, worn, weary and ragged, but joyous. They had reached the summit and returned in safety. That night, by the light of the camp-fire, I calculated the height so well as possible with only their observations. It was the highest unnamed peak then measured in the country. *We called it Mt. TYNDALL.*

This peak is 14,386 feet altitude,* and lies in about Lat. $36^{\circ} 39' N.$ and Lon. $118^{\circ} 19' W.$ It is surrounded with peaks above 13,000 feet, buttressed with ridges of granite, streaked with the snows of centuries and furrowed with terrible cañons, the desolation of the scene increased rather than relieved by the little blue lakes, some of them frozen, lying in the ancient glacier beds. The whole region is one of profound sublimity. It is a part of that great mountain system that stretches from Cape Horn to Bering Strait, perhaps the grandest chain of our planet. Here is the grand monument bearing the name of a great man.

Professor Tyndall's books are now so widely read that the name is almost a household word wherever the English language is spoken. But I look forward in imagination and think that the next century will see vastly less of them. Science will advance, new generations will need new books, and his, which now so delight us, will then have almost lost their individuality in the great mass of scientific literature. But the man will not be forgotten. Science will not lose sight of his works, and a grand monument of Nature's building will link him with the future and keep his memory green. Coming generations of school-children, conning their geographies, will learn to pronounce the name of one who loved Mountains even as he loved Science.

Yours truly,

W.M. H. BREWER

* The later measurements of the U. S. Geological Survey give the height as 14,025 feet.

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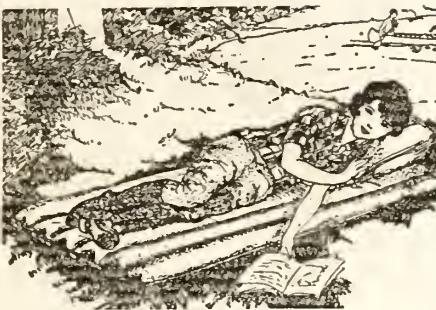


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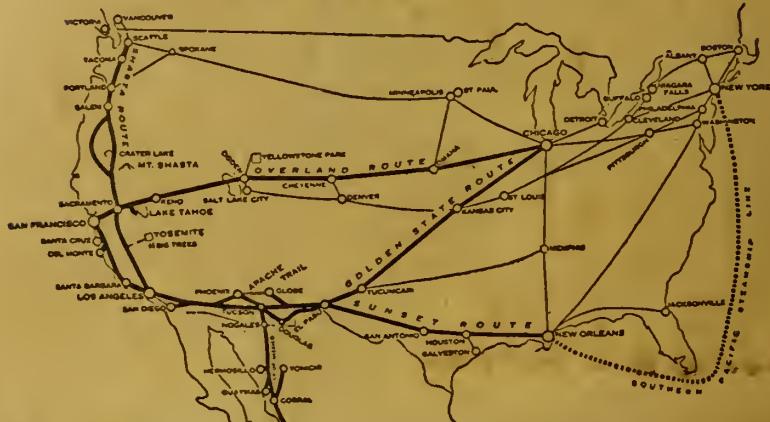
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